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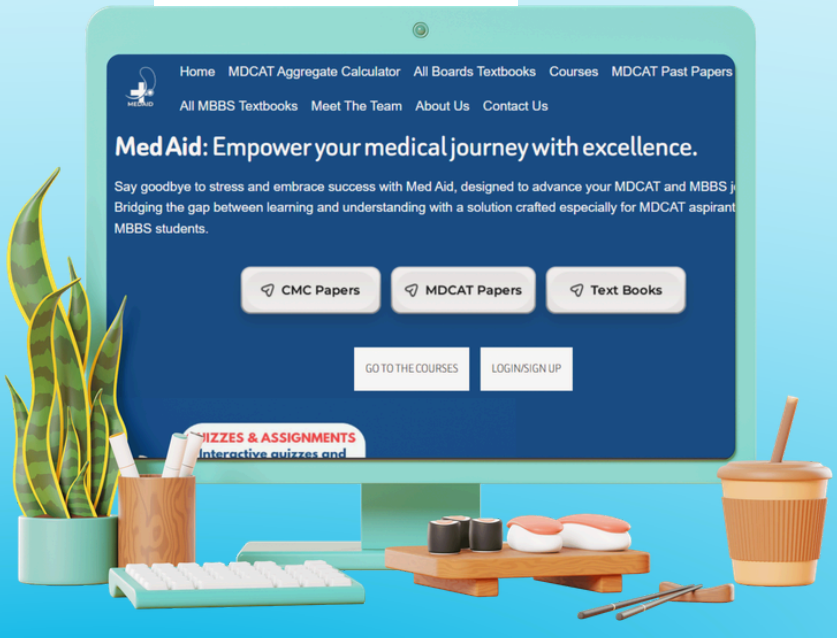
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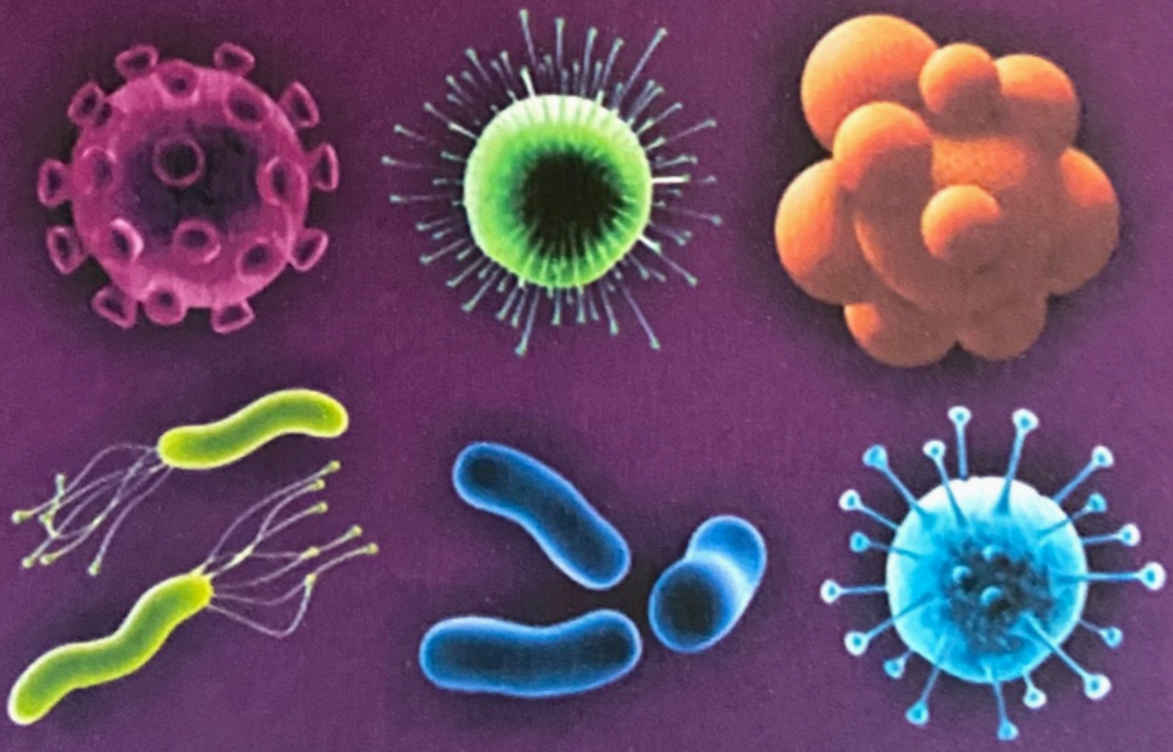
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UNIT 1

PRACTICE EXERCISE

BIODIVERSITY (ACELLULAR LIFE/VARIETY OF LIFE)

1. **Rabies is due to:**
   A) Fungi
   B) Bacteria
   C) Protozoan
   D) Virus

2. **Viruses are the particles of _____**
   A) Nucleic acid only
   B) Proteins only
   C) Nucleic acid & Protein
   D) None of these

3. **The major cell infected by HIV is:**
   A) B-lymphocyte
   B) T-lymphocyte
   C) Helper T-Lymphocyte
   D) Suppressor T lymphocyte

4. **Of the following which one is Retrovirus?**
   A) HIV
   B) Influenza
   C) Mumps
   D) All of These

5. **Viruses cannot multiply of their own because they**
   A) Do not have sex organs
   B) Lack genetic material
   C) Lack cellular machinery to use its genetic material
   D) None of the these

6. **Viral genome, incorporated and integrated with bacterial genome is referred to as**
   A) Prophages
   B) DNA
   C) RNA
   D) Both A) and C)

7. **The branch which deals with the study of virus is called**
   A) Biology
   B) Virology
   C) Cytology
   D) Taxonomy

8. **Which of the following diseases is not caused by virus**
   A) Cholera
   B) Influenza
   C) Hepatitis
   D) Polio

9. **Twort in 1915 and D' Herelle in 1917 discovered**
   A) Pox virus
   B) Bacteriophages
   C) Adenovirus
   D) Herpes Virus

10. **Bacteriophage replicates only in _____ cell**
    A) Animal
    B) Bacterial
    C) Plant
    D) Fungi

11. **Small pox is a _____**
    A) DNA Virus
    B) RNA Virus
    C) DNA Enveloped Virus
    D) RNA Enveloped Virus

12. **AIDS is caused by:**
    A) virus
    B) Bacteria
    C) Algae
    D) HIV

13. **Choose the wrong statement regarding AIDS.**
    A) AIDS is an immunodeficiency disease
    B) It is caused by the retrovirus HIV
    C) HIV selectively infects and kills B – lymphocytes
    D) Retroviruses have RNA genomes that replicate via DNA intermediate

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14. **CD4 receptors are present on:**
A) T-lymphocytes C) B-lymphocytes
B) Helper T-lymphocytes D) HIV

15. **Which of the following is present in all viruses**
A) DNA C) RNA
B) Protein D) Envelope

16. **All are present in HIV except**
A) Lipids C) RNA
B) DNA D) Protein

17. **Shape of TMV is**
A) Spherical C) Tad Pole
B) Rod D) Pyramidal

18. **Which of the following is derived from host by HIV**
A) Envelope C) Reverse Transcriptase
B) RNA D) All

19. **Receptors for attachment of HIV are present on**
A) Cell Wall C) Tail Fibers
B) Cell Membrane D) None

20. **All are characteristics of polio virus except**
A) Small C) Acellular
B) Spherical D) DNA

21. **Agent responsible for mad cow infection is**
A) Virus C) Bacteria
B) Vision D) Prion

22. **Which event of life cycle of HIV occur in nucleus**
A) Uncoating C) Provirus
B) Reverse Transcription D) Assembly

23. **First crystallized virus is**
A) TMV C) Herpes
B) Bacteriophage D) HBV

24. **Viroid is infectious_____.**
A) Protein C) Nucleoprotein
B) DNA D) RNA

25. **Reverse transcriptase is an enzyme contained by:**
A) All viruses C) Retroviruses
B) Bacteriophages D) Plant viruses

26. **AIDS will lead to:**
A) Liver cirrhosis C) Opportunistic infections
B) Mental retardation D) Angina

27. **In a newly discovered virus you might find:**
A) DNA C) DNA or RNA
B) RNA D) DNA and RNA

28. **Bacteriophage consists of or made up of:**
A) RNA C) Nucleoproteins
B) Proteins D) DNA

29. **AIDS is due to:**
A) Deficiency of T lymphocytes C) Deficiency of riboflavin
B) Bacterial infection D) High blood pressure

30. **Which one of the following statements about viruses is correct:**
A) Viruses process their own metabolic system
B) Viruses contain either DNA or RNA
C) Virus are facultative parasites.
D) Viruses are readily killed by antibiotics.

31. **The virus was first discovered by:**
A) K. M. Smith
B) Twart
C) M. Stanley
D) Ivanowski

32. **Which of the following is true for viruses:**
A) Multiply only in host cells
B) Behave as if they are plants
C) Are made up of proteins only
D) Occur only inside bacteria

33. **The genetic material of retroviruses (AIDS virus) is:**
A) Single stranded RNA
B) Double stranded RNA
C) Double stranded DNA
D) Single stranded DNA

34. **Virus free plant from virus-infected plant can be obtained from:**
A) Meristem culture
B) Tissue culture
C) phloem culture
D) Stem cutting

35. **Interferons are produced in response to infection of:**
A) Fungi
B) Tapeworms
C) Viruses
D) Bacteria

36. **Most RNA viruses carry a gene for an enzyme that uses viral RNA as a template in the synthesis of more viral RNA. This enzyme is:**
A) RNA primase
B) Reverse transcriptase
C) RNA polymerase
D) Viral nuclease

37. **Which of the following statement is not true for retroviruses?**
A) DNA is not present at any state in the life cycle of retroviruses
B) Retroviruses carry gene for RNA dependent DNA polymerase
C) The genetic material in mature retroviruses is RNA
D) Retroviruses are causative agents for certain kinds of cancer in man

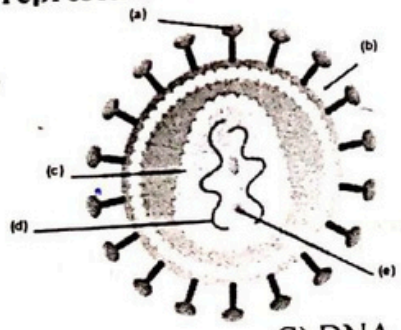
38. **Which of the following statements is correct?**
A) RNA is genetic material of bacteria
B) RNA is genetic material of all virus
C) DNA is genetic material of some organism
D) Some virus has RNA as genetic material

39. **Which of the following type of virus is illustrated in the diagram?**



A) Animal virus
B) Plant virus
C) Bacteriophage
D) Viroid

40. **What does structure (c) represent?**



A) Envelope
B) Capsid
C) DNA
D) RNA

41. **The enzymes reverse transcriptase essentially found in all retroviruses is:**
A) DNA dependent RNA polymerase
B) DNA dependent DNA polymerase
C) RNA dependent RNA polymerase
D) RNA dependent DNA polymerase

42. **Bacteriophages kill:**
A) Fungi
B) Parasites
C) Bacteria
D) Viruses

43. **Which of the following are intracellular obligate parasites?**
A) Bacteria
B) Viruses
C) Slime molds
D) Cyanobacteria

44. **All enzymes are present in HIV except:**
A) Reverse transcriptase
B) Integrase
C) Protease
D) lysozyme

ANSWER KEY

1	D	11	C	21	D	31	D	41	D
2	C	12	D	22	C	32	A	42	C
3	C	13	C	23	A	33	A	43	B
4	A	14	B	24	D	34	A	44	D
5	C	15	B	25	C	35	C		
6	A	16	B	26	C	36	B		
7	B	17	B	27	C	37	A		
8	A	18	D	28	C	38	D		
9	B	19	B	29	A	39	A		
10	B	20	D	30	B	40	B		

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PAST PAPER MCQs

DISCOVERY OF VIRUSES
CLASSIFICATION OF VIRUSES
STRUCTURE OF VIRUSES

Q.1 Viruses are simplest organisms and: (UHS-Model Paper-2011)
A) Have their own enzymes.
B) Have cell membrane but not cell wall.
C) Undergo cell division.
D) Are only DNA or RNA particles without cellular structure

Q.2 Chemically, viruses are made up of (2010)
A) Nucleic acid only
B) Protein only
C) Nucleic acid and protein
D) Core and coat

Q.3 All viruses can reproduce within living organisms only, so they are known as: (2016)
A) Ectoparasites
B) Endoparasites
C) Obligate intracellular parasites
D) Facultative intracellular parasites

Q.4 Cilia and flagella are absent in: (2017)
A) Viruses
B) Bacteria
C) Higher plants
D) Lower animals

Q.5 Which one of the followings is a non-cellular infectious entity? (2017)
A) Mycoplasma
B) Escherichia coli
C) Herpes virus
D) Diplococcus

Q.6 What is size range of viruses: (2017-Retake)
A) 250nm to 200nm
B) 250nm to 100nm
C) 200nm to 20nm
D) 250nm to 20nm

Q.7 In viruses, a combined structure formed by core (Nucleic acid) and capsid is: (2018)
A) Nucleocapsid
B) Envelope
C) Capsomeres
D) Prions

Q.8 Capsid, the protective coat of a virus is made up of ----------subunits known as capsomeres. (2019)
A) Lipid
B) Protein
C) RNA
D) DNA

Q.9 Which of the following is not related to enveloped virus? (2020)
A) They survive for a short time
B) Their envelope is sensitive to sun light
C) They are tolerant to antibodies
D) Envelope is derived from host

Q.10 The complete, mature and infection virus particle is known as: (2020)
A) Venome
B) Genome
C) Virion
D) Capsid

BACTERIOPHAGES

Q.11 What are the sequence of steps in which a bacteriophage attacks bacteria and injects its DNA? (2014)
A) Landing → Tail contraction → Penetration → DNA injection
B) Penetration → Landing → Tail contraction → DNA injection
C) Tail contraction → Landing → DNA injection → Penetration
D) Landing → Penetration → Tail contraction → DNA injection

Q.12 The viruses can reproduce: (2017)
A) Without invading any cell
B) In bacterial cell
C) By mitosis
D) By meiosis

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Q.13 The life cycle in which phage kills the bacteria is known as: (2017)
A) Transduction
B) Temperate phage cycle
C) Lytic cycle
D) Lysogenic phage cycle

Q.14 Lysogenic viruses are also known as: (2018)
A) Bacteriophage
B) Enveloped phage
C) Virulent phage
D) Prophage

VIRAL DISEASES

Q.15 Herpes simplex is caused by virus: (2008)
A) Enveloped RNA
B) Non-enveloped DNA
C) Non-enveloped RNA
D) Enveloped DNA

Q.16 Name the enveloped RNA virus that causes infusion Hepatitis: (2008)
A) HBV
B) HAV
C) HCV
D) None of these

Q.17 Symptoms of Herpes Simplex is: (2009)
A) Abdominal Pain
B) Fever
C) Vesicular lesions in the epithelial layer
D) Failure of immune system

Q.18 Widespread epidemic disease, influenza is caused by (2010)
A) DNA virus
B) RNA enveloped virus
C) DNA enveloped virus
D) RNA virus

Q.19 Which one of the following diseases is caused by enveloped RNA virus and spread in epidemic form? (2011)
A) Influenza
B) Herpes simplex
C) Polio
D) Small pox

Q.20 The major cause of hepatitis B is: (2014)
A) Blood transfusion
B) Blood clotting
C) Absence of fibrinogen
D) Contaminated soil

Q.21 Which of the following is a blood borne disease? (2011)
A) Hepatitis
B) Cholera
C) Influenza
D) Candidiasis

HIV & AIDS

Q.22 The major cell infected by the HIV is: (2009)
A) Leucocyte
B) Monocyte
C) Helper T-lymphocyte
D) B-lymphocyte

Q.23 In HIV viruses, reverse transcriptase converts single stranded RNA into double stranded viral DNA. This process is called: (2012)
A) Translation
B) Duplication
C) Replication
D) Reverse transcription

Q.24 Which one of the following cells is mainly infected by HIV? (2014)
A) T-killer lymphocytes
B) T-helper lymphocytes
C) B-plasma cells
D) B-memory cells

Q.25 HIV is classified as: (2015)
A) Bacteriophage
B) Oncovirus
C) Retrovirus
D) Icosahedral virus

Q.26 AIDS is caused by: (2016)
A) Bacteria
B) Virus
C) Fungi
D) Alga

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Q.27 **Reverse transcriptase is used to make DNA copies of:** **(2013 & 2017-Retake)**

A) Host RNA
B) Host DNA
C) Viral DNA
D) Viral RNA

Q.28 **Among followings,_____enzyme is naturally found in human immunodeficiency virus (HIV).** **(2019)**

A) DNA polymerase
B) RNA polymerase
C) Reverse transcriptase
D) Ligase

Q.29 **Numerous opportunistic diseases might attack a person suffering from which of the following diseases?** **(2020)**

A) Measles
B) Influenza
C) Hepatitis A
D) AIDS

Q.30 **Which of the following is NOT TRUE about Human immunodeficiency virus (HIV)?** **(2020)**

A) It is a retrovirus
B) It is surrounded by envelope
C) It does not cause AIDS
D) It causes deficiency of the human immune system

ANSWER KEY

1.	D	6.	D	11.	A	16.	C	21.	A	26.	B
2.	C	7.	A	12.	B	17.	C	22.	C	27.	D
3.	C	8.	B	13.	C	18.	B	23.	D	28.	C
4.	A	9.	C	14.	D	19.	A	24.	B	29.	D
5.	C	10.	C	15.	D	20.	A	25.	C	30.	C

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PAST PAPER MCQs-2021

Classification of Viruses

Q.1 Where can viruses replicate?
A. Animals
B. Plants
C. Bacteria
D. All

Q.2 These are largest animal viruses:
A. HIV
B. Poxviruses
C. Covid-19
D. HBV

Q.3 Viruses do not have:
A. Fossil record
B. Traces in history
C. Reproductive ability
D. Nucleic acid

Q.4 In plants, tumors are induced due to:
A. Bacteria
B. Virus
C. Fungi
D. All of these

Q.5 Cell theory does not explain:
A. Fungi
B. Virus
C. Algae
D. Protista

Q.6 Which of the following has no nucleic acid?
A. Bacteria
B. Virus
C. Prions
D. Viroid

Q.7 It is a biological weapon:
A. Radiation
B. Chemical
C. Virus
D. All of these

Q.8 Virus transmission is affected by:
A. Biotic factors
B. Chemical factors
C. Physical factors
D. All of these

Q.9 Viruses are _____ entity between living and non-living.
A. Balanced
B. Transitional
C. Threshold
D. None

Q.10 Virus when attack on unfamiliar organism, it is mutated many times and come as:
A. More virulent and dangerous
B. More mutated
C. More transmissible
D. All of these

Q.11 Viruses are classified into many groups on the basis of:
A. Nucleic acid
B. Capsid symmetry
C. Host cell infectivity
D. None of these

Q.12 Viruses use which of the following enzyme for break-down of bacterial cell wall?
A. Lysozyme
B. Lipase
C. Protease
D. Nuclease

Q.13 Viral proteins and genome in host cell are assembled at:
A. Cytoplasm
B. Cell wall
C. Cell membrane
D. Cell matrix

Q.14 Virus can bud from:
A. RER
B. Golgi complex
C. Nuclear envelope
D. Plasma Membrane

Q.15 _____ refers to removal or breakdown of capsid.
A. Uncoating
B. Assembly
C. Integration
D. Maturation

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Q.16 Which viruses enter the host cell as a whole?
A. Plant virus
B. Bacteriophages
C. Animal virus
D. None

Discovery of Viruses

Q.17 The branch that deals with the study of viruses is known as?
A. Entomology
B. Virology
C. Epidemiology
D. Bacteriology

Q.18 Louis Pasteur made vaccines for:
A. Rabies
B. Anthrax
C. Fowl cholera
D. All of Above

Q.19 According to Iwanowski what are soluble living germs?
A. Bacteria
B. Viruses
C. Fungi
D. Both A and B

Q.20 When was the bacteriophage phenomena rediscovered by D'Herelle?
A. 1918
B. 1917
C. 1920
D. 1990

Q.21 When were bacteriophages discovered by Twort?
A. 1915
B. 1920
C. 1910
D. 1820

Q.22 Virus that was discovered in 1901:
A. Yellow fever
B. Tobacco mosaic
C. Bacteriophages
D. Corona

Q.23 Earliest life form on earth is:
A. Virion
B. Viroid
C. Prion
D. None

Structure of Viruses

Q.24 It is very stable and allows viruses to exist in water, air, and the ground:
A. Nucleoproteins
B. Nucleocapsid
C. Tail of virus
D. None of the above

Q.25 The complete, mature and infectious particle is known as:
A. Capsid
B. Virion
C. Bacteriophage
D. Nucleus

Q.26 Virus is composed of:
A. Nucleic acid and capsid
B. RNA only
C. Genome
D. Capsid

Q.27 Protein coat of a virus enclosing nucleic acid is called?
A. Vector
B. Capsid
C. Plasmid
D. Genome

Q.28 What molecule would you not expect to find in a retrovirus?
A. Adenine
B. Thymine
C. Uracil
D. Guanine

Q.29 What is the size of Parvovirus?
A. 200nm
B. 30nm
C. 20nm
D. 100nm

Q.30 The viral DNA or RNA is protected by:
A. Shell of lipids
B. Shell of proteins
C. Shell of carbohydrates
D. Shell of amino acids

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Q.31 What type of virus is the smallpox virus?
A. DNA enveloped virus
B. RNA enveloped virus
C. DNA virus
D. RNA enveloped virus

Q.32 What is the viral nucleocapsid made up of?
A. Genome and capsid
B. Capsid and spikes
C. Envelope and capsid
D. Capsomere

Q.33 What types of viruses is the poliovirus?
A. DNA enveloped virus
B. RNA enveloped virus
C. DNA naked virus
D. RNA naked virus

Q.34 Herpes simplexes are caused by which virus?
A. Adenovirus
B. Pox virus
C. Influenza Virus
D. Herpes virus

Q.35 What type of virus is the herpes simplex virus?
A. DNA enveloped virus
B. RNA enveloped virus
C. DNA virus
D. RNA naked virus

Q.36 The numbers of capsomeres found in adenovirus capsid is:
A. 162
B. 200
C. 252
D. 155

Q.37 The numbers of capsomeres found in herpes virus capsid is:
A. 162
B. 200
C. 234
D. 155

Q.38 The genome of the virus includes:
A. Deoxyribonucleic acid
B. Ribonucleic acid
C. Amino acids
D. Deoxyribonucleic acid or Ribonucleic acids

Q.39 Viruses without nuclear envelope are called as:
A. Icosahedral vims
B. Naked virus
C. Enveloped virus
D. Bilayer virus

Q.40 Which of the following are the main functions of the capsid?
A. Determines the antigenic specificity of the virus
B. Protects genetic material from nuclease attack
C. Both A and B
D. None of the above

Q.41 Which of the following statements explains why viruses are only able to multiply in living cells?
A. Their binary fission is controlled by host cell genes
B. Virus do not possess the necessary components for self-replication
C. DNA is only able to replicate inside living cells
D. They have only enough genetic information for DNA replication

Q.42 A chemical component that is not found in all viruses is:
A. Protein
B. DNA
C. Lipids
D. RNA

Q.43 A common polyhedral capsid shape of viruses is:
A. Pentagon
B. Cube
C. Icosahedron
D. Pyramid

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Q.44 Identify the true statement about virus:
A. Viruses were discovered 2 billion years ago
B. Viruses came from outer space
C. Viruses evolved before bacteria
D. Viruses can infect all type of cells

Q.45 The average diameter of large viruses is approximately:
A. 100 to 160 nm
B. 100 to 200 nm
C. 100 nm to 360 nm
D. Always below than 100 nm

Q.46 What are the subunits of capsids?
A. Capsomeres
B. Flagella
C. Hyphae
D. Septa

Q.47 Viral envelope is composed of:
A. Proteins
B. Glycoproteins
C. Lipids and proteins
D. All of the above

Q.48 It refers to the final changes within an immature virion that result in an infectious virus particle:
A. Assembly
B. Coating
C. Integration
D. Maturation

Q.49 All of the following descriptions regarding viral multiplication and nucleic acids are true except that:
A. Viruses contain DNA or RNA, not both
B. Viral mRNA, viral tRNA, and viral ribosomes are used in viral replication
C. Viruses replicate only in living cells
D. Viruses use the cell's biosynthetic machinery to synthesize copies of them

Q.50 Which of the following is not true of a virion?
A. Reproduce independently
B. Contain DNA
C. Contain RNA
D. Extracellular

Q.51 Protein coat of a virus enclosing nucleic acid is called:
A. Vector
B. Capsid
C. Plasmid
D. Genome

Q.52 What is the approximate diameter of retroviruses?
A. 150 nm
B. 100 nm
C. 200 nm
D. 250 nm

Q.53 When a virus enters a cell and incorporates its RNA or DNA into host DNA, what is this stage called?
A. Lysogeny
B. Fermentation
C. Symbiosis
D. Synergism

Q.54 Phage DNA incorporated into host DNA is referred as:
A. T_4 phage
B. Provirus
C. Prophage
D. Bacteriophage

Q.55 Infectious RNA without capsid:
A. Virion
B. Viroid
C. Prion
D. Virus

Q.56 What does the size of virus ranges between?
A. 100 mm to 150 mm
B. 20 nm to 250 nm
C. 300 nm to 3000 nm
D. 3 nm to 30 nm

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Q.57 Which of the following statement is not true of viruses?
A. Viruses have been successfully grown in pure cultures in test tubes
B. All viruses are obligate intracellular parasites
C. All viruses have either DNA or RNA as their genetic material
D. Viruses probably arose from small fragments of cellular chromosomes

Q.58 What is the shape of the TMV?
A. Rod
B. Helical
C. Tadpole
D. Spherical

Q.59 In icosahedral, the capsomeres are arranged in_____ triangles:
A. 100
B. 200
C. 1000
D. None of these

Q.60 In nucleus the ssDNA viral genome is converted to dsDNA by:
A. DNA polymerase
B. RNA polymerase
C. Cell enzymes
D. Proteins

Q.61 Reverse transcriptase is a useful enzyme to have when:
A. RNA virus converts its RNA to DNA
B. There are no host cells present
C. Nutrients are scarce
D. Spikes are forming in the new virus

Q.62 What is a Provirus?
A. Free virus
B. Free DNA
C. Primitive virus
D. Integrated viral genome

Q.63 The function of a viral capsid is?
A. Protection against the viral genome from physical and enzymatic destruction
B. Providing binding sites that enable the virus to attach to specific receptor sites on the host cell
C. Serving as a vehicle of transmission from one host to another
D. All of the above

Q.64 Which of the following virus is enveloped?
A. Adenovirus
B. Herpes virus
C. Poliovirus
D. None of these

Q.65 Which of the following is not a described type of virus?
A. Virus containing double strand DNA
B. Virus containing single strand DNA
C. Virus containing single strand RNA
D. Virus containing single strand RNA and single strand DNA

Q.66 The size of viruses is usually measured in:
A. Centimeters
B. Micrometers
C. Nanometers
D. Millimeters

Q.67 Icosahedral viruses have how many faces?
A. 20
B. 30
C. 10
D. 40

Q.68 Virus differ from bacteria by:
A. Having capsids
B. Having DNA
C. Having RNA
D. Having ribosomes

Q.69 It is not true about viruses:
A. Capsid has capsomeres
B. Both DNA and RNA together as genome
C. Some are enveloped
D. Many infect animals

Q.70 Causative agent of small pox is:
A. DNA enveloped virus
B. RNA enveloped virus
C. DNA virus
D. RNA naked virus

Q.71 Which of the following statements are true about the viruses?
A. Free living
B. Obligate parasites
C. Both A and B
D. None of the above

Q.72 Which factors may help to determine the antigenicity of a virus?
A. Capsomeres
B. Size of virus
C. Whole capsid
D. Internal proteins

Q.73 Which of the following has morphology of a helical virus?
A. TMV
B. T4 Phage
C. Poxvirus
D. Herpes virus

Q.74 HBV is:
A. DNA enveloped virus
B. RNA enveloped virus
C. DNA Virus
D. RNA naked virus

Q.75 A structure which is located between the nucleocapsid and the envelope:
A. Capsid
B. Matrix protein
C. Envelop
D. Nucleocapsid

Q.76 Viroids lacks:
A. RNA
B. Enzyme
C. Protective protein coat
D. All of these

Q.77 What type of viruses are the paramyxoviruses?
A. DNA enveloped virus
B. RNA enveloped virus
C. DNA virus
D. Naked virus

Q.78 Which of the following viruses possess an envelope?
A. Herpes virus
B. Reovirus
C. Polio virus
D. Papillomavirus

Q.79 What does an icosahedral capsid consists of?
A. Hexagonal capsomeres
B. Pentagonal capsomeres
C. Triangular Capsomeres
D. Both A and B

Q.80 Viruses are limited in their host range because?
A. Can only replicate in certain types of cells
B. Certain cells are susceptible to viral infections
C. They can only enter cells that have proper/specific receptors
D. They can only enter cells with glycoproteins

Q.81 Viruses do not replicate on their own due to:
A. Too small
B. Lack metabolic machinery
C. Have no cell wall
D. All of these

Q.82 It is incorrect about virus:
A. Acellular nature
B. DNA
C. RNA
D. Metabolism

Viral Disease (For Example AIDS)

Q.83 The Long chains of HIV-Proteins is cut down by proteases of:
A. HIV
B. Host proteases
C. Both viral and host proteases
D. None of these

Q.84 Whenever a virus encounters an unfamiliar organism, the virus may undergo multiple mutations and emerge as a variant that produces:
A. Severe and novel disease
B. Novel disease
C. Non mutated
D. None of these

Q.85 In which year causative agent of AIDS was named?
A. 1986 B. 1980
C. 1992 D. 1970

Q.86 The Herpes virus is responsible for which of the following types of Herpes?
A. Simplex B. Quadruplex
C. Triplex D. Duplex

Q.87 Edward Jenner prepared vaccine against:
A. Small pox B. Mumps
C. Measles D. Chicken pox

Q.88 Major cell infected by HIV:
A. T killer lymphocytes B. T helper lymphocytes
C. T suppressor lymphocytes D. T memory lymphocytes

Q.89 Which of the following molecule facilitates the entry of HIV in human body?
A. Liposomes B. Glycoprotein
C. Polysaccharides D. Lipopolysaccharides

Q.90 Prominent symptoms of AIDS:
A. Pneumonia B. Rapid weight loss
C. Extreme and unexplained tiredness D. All of these

Q.91 For the synthesis of mRNA, HIV uses:
A. Viral RNA polymerase B. Cytoplasmic RNA polymerase
C. Host RNA polymerase D. None of the above

Q.92 A person with viral load of HIV 1 if untreated leads to:
A. Cancer B. Hepatitis
C. Jaundice D. AIDS

Q.93 Which of the following is more virulent?
A. HIV-2 B. HIV-1(a)
C. HIV-1 D. HIV-2 (a)

Q.94 There is no vaccine against HIV. What is the possible reason for this?
A. Virus mutates rapidly
B. Vaccine is very expansive
C. Vaccine can be controlled by change in hygiene
D. None of these

Q.95 HIV mainly attacks on:
A. CD_4 site of T cells B. B cells
C. White blood cells D. None of these

Q.96 Chimpanzee has _____ instead of HIV.
A. SIV B. CIV
C. HBV D. HIV-2

Q.97 AIDS is caused:
A. Human immunodeficiency virus B. Paramyxoviruses
C. Influenza Virus D. Retroviruses

Q.98 What is meant by HIV-Negative?
A. A person has AIDS
B. A person having two positive tests for HIV
C. A person can transmit the HIV
D. A person is safe from AIDS

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Q.99 The replication of the HIV nucleic acid depends on:
A. Replicase
B. Reverse transcriptase
C. Transcriptase
D. Reverse replicase

Q.100 Viral genome in integrated into host genome by which of the following enzymes?
A. Integrase
B. DNA incorporase
C. Reverse transcriptase
D. Protease

Q.101 Three stages of HIV infection are:
A. Acute infection → Chronic infection → AIDS
B. AIDS → Acute infection → Chronic infection
C. Chronic infection → AIDS → Acute infection
D. Acute infection → AIDS → Chronic infection

Q.102 Mumps and Measles are caused by which of the following?
A. Adenoviruses
B. Pox viruses
C. Influenza viruses
D. Paramyxoviruses

Q.103 HAV is transmitted by:
A. Faeces
B. Sexual contact
C. Blood
D. All of these

Q.104 _____ is usual causative agent of genital herpes.
A. HSV-1
B. HSV-2
C. Both A and B
D. None of these

Q.105 When did experimental administration of the HIV virus begin?
A. 2001
B. 1999
C. 2005
D. 2000

Q.106 Pigs are reservoir of:
A. HAV
B. HBV
C. HCV
D. HEV

Q.107 Which of the following statement correctly describes the tobacco mosaic virus?
A. RNA virus
B. DNA virus
C. Bacteriophage
D. dsDNA virus

Q.108 Pox virus is different from all others due to:
A. Structure
B. Size
C. Nucleic acid
D. All of above

Q.109 A remarkable feature of pox virus:
A. Largest in size
B. DNA genome
C. Envelope
D. None of these

Q.110 It is true about Mumps:
A. Can affect testes and ovaries
B. Passive immunization is only treatment
C. Vaccine is not available for this
D. Widely spread

Q.111 Genetically engineered vaccine is available for which of the following hepatitis virus?
A. HBV
B. HAV
C. HCV
D. Both A and B

Q.112 Poxvirus has:
A. Double stranded DNA
B. Single stranded DNA
C. Double stranded RNA
D. Both A and C

Q.113 For attachment rabies virus bind to:
A. Complement receptor
B. Integrin ICAM-1
C. Acetylcholine receptor
D. Epidermal growth factor

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Q.114 Where does the AIDS virus infect?
A. RBCs
B. Platelets
C. Leukocytes
D. None

Q.115 Which specialized enzyme do retrovirus have?
A. DNA polymerase
B. Ligase
C. Reverse transcriptase
D. Helicase

Q.116 Hepatitis D also known as:
A. Serum hepatitis
B. Infectious hepatitis
C. Bacterial hepatitis
D. Delta hepatitis

Q.117 How the HIV is transmitted?
A. Sexual contact
B. Blood
C. Breast feeding
D. All of the above

Q.118 Which of the following is not a viral disease?
A. Smallpox
B. AIDS
C. Tetanus
D. Cowpox

Q.119 Which of the following is not a component of HIV?
A. RNA
B. Ribosomes
C. Envelope
D. Matrix

Q.120 HIV differs from many viruses because it has high genetic:
A. Sensitivity
B. Complexity
C. Variability
D. Viability

Q.121 Influenza virus protein HA binds with _____ residues found on the surface of respiratory epithelial cells.
A. Uncoding protein
B. Sialic acid
C. Antigen P
D. Antigen HI

Q.122 All are HIV symptoms except:
A. Sore throat, chills, fever, body aches
B. Chills, fever, flu, muscle cramps
C. Cardiac arrest, bloody stools, chills
D. Rash, fatigue, mouth ulcers

Q.123 SIV is the abbreviation of:
A. Simian immunodeficiency virus
B. Silurian immunodeficiency virus
C. Siberian immunodeficiency virus
D. Both A and C

Q.124 The enzyme which plays important role in HIV pathogenesis:
A. RNA polymerase I
B. DNA polymerase II
C. Reverse Transcriptase I
D. Reverse Transcriptase

Q.125 All of the following are the current preventive methods of HIV infection except:
A. Safe and protected lifestyle
B. Use of sterile injections and needles
C. Use of available vaccines
D. Safe blood transfusion methods

Q.126 Influenza is caused by:
A. Adenovirus
B. Pox virus
C. Influenza Virus
D. Herpes virus

Q.127 This locks the HIV genome into capsid:
A. Gag protein
B. Env protein
C. Pol protein
D. All of these

Q.128 The genetically engineered vaccine is not available for which of the following?
A. HAV
B. HCV
C. HBV
D. HDV

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Q.129 In what year did WHO declare that smallpox was completely eradicated?
A. 1990 B. 2001
C. 1980 D. 1995

Q.130 AIDS was firstly reported in which types of individuals?
A. Heterosexuals B. Homosexuals
C. Both D. None

Q.131 Mad cow disease is caused by which of the following:
A. Prion B. Virus
C. Bacteria D. Both A and B

Q.132 _____is associated with a number of tumors in humans:
A. HSV-2 B. Varicella-zoster virus
C. Oncoviruses D. Picomavirus

Q.133 Which virus causes the second major form of hepatitis?
A. Hepatitis A B. Hepatitis B
C. Hepatitis C D. Hepatitis D

Q.134 Which can convert normal cells into cancer cells?
A. Retrovirus B. Adenovirus
C. Poliovirus D. All

Q.135 People with chronic hepatitis are at risk of:
A. kidney damage B. Liver damage
C. Heart damage D. Lung damage

Q.136 Virus for making viral DNA uses whose RNA polymerase:
A. Host B. Viral
C. Encoded by viral genome D. None

Q.137 Retro viruses are characterized by:
A. Lack envelope B. Have no capsid
C. Reverse transcriptase enzyme D. DNA genome

Out of Syllabus

Q.138 Bacteriophages, or phages are also known as:
A. Bacteria facilitator B. Bacteria eater
C. Animal viruses D. Plant viruses

Q.139 The bacteriophage incorporates in the viral genome in which phase?
A. Lysogenic cycle B. Both
C. Lytic cycle D. None

Q.140 How many bacteriophages are formed after 25 minutes of initial infection?
A. 250 B. 200
C. 150 D. 100

Q.141 What is the first step in the replication of bacteriophage?
A. Replication B. Penetration
C. Attachment D. Injection

Q.142 Viruses that attack bacteria are called:
A. Virophage B. Lysophage
C. Bacteriophage D. None of the above

Q.143 Where the double stranded DNA of the bacteriophage is found?
A. Tail B. Sheath
C. Collar D. Head

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Q.144 The phage that causes the lytic cycle is called:
A. Virulent phage
B. Lytic phage
C. Temperate phage
D. Both A and B

Q.145 During lytic cycle how many phages are released from infected host cell:
A. 100-300
B. 100-500
C. 100-200
D. 100-400

Q.146 Bacteriophages have been used widely in genetic research, since they are the smallest and simplest biological entities capable of:
A. Self-replication in host cell
B. Duplication
C. Self-duplication
D. Multiplication in host cell

Q.147 Binary fission occurs in which stage of the bacteriophage life cycle?
A. Lysogenic cycle
B. Lytic cycle
C. Both A and B
D. None

Q.148 The structure of which bacteriophage resembles a tadpole?
A. T_2
B. T_4
C. Both A and B
D. None

Q.149 These viruses usually occur in two structural forms:
A. HIV
B. HCV
C. Bacteriophage
D. COVID-19

Q.150 In which step is lysozyme released by the bacteriophage?
A. Attachment
B. Penetration
C. Injection
D. Replication

Q.151 What type of the phage is a T_2 Phage?
A. ssDNA Phage
B. dsDNA phage
C. ssRNA Phage
D. ds RNA Phage

Q.152 Which type of viruses infect *E. coli* bacteria?
A. T phages
B. P phages
C. Both A and B
D. None

Q.153 What is the function of lysozyme released by bacteriophages?
A. Injecting DNA
B. Replication
C. Dissolve bacterial cell wall
D. All of these

Q.154 Where does the bacteriophage replicate?
A. Human
B. Horse
C. Bacteria
D. Animal

Q.155 The phage that causes the lysogenic cycle is?
A. Virulent phage
B. Lytic phage
C. Temperate phage
D. Both A and B

Q.156 When the tobacco mosaic virus was successfully crystallized?
A. 1935
B. 1930
C. 1932
D. 1920

Q.157 They show complexity:
A. Influenza virus
B. Herpes virus
C. T_4 virus
D. All of these

Q.158 Viral DNA, incorporated into bacterial DNA, is called:
A. T_4 phase
B. Bacteriophage
C. Prophage
D. Lytic phage

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Q.159 What was the correct classification according to Linnaeus?

A. Similar genera in one family
B. Similar species in one genus
C. Similar families in one order
D. All of above

Q.160 Pathogens inside body are killed by:

A. Antibodies
B. Immune system cells
C. Interferon
D. All of these

ANSWER KEY

1	D	21	A	41	B	61	A	81	B	101	A	121	B	141	C
2	B	22	A	42	C	62	D	82	D	102	D	122	C	142	C
3	A	23	D	43	C	63	D	83	A	103	A	123	A	143	D
4	D	24	B	44	D	64	B	84	B	104	B	124	D	144	D
5	B	25	B	45	B	65	D	85	A	105	A	125	C	145	C
6	C	26	A	46	A	66	C	86	A	106	D	126	C	146	D
7	C	27	B	47	C	67	A	87	A	107	A	127	A	147	A
8	D	28	B	48	A	68	A	88	B	108	B	128	B	148	B
9	B	29	C	49	B	69	B	89	B	109	A	129	C	149	C
10	D	30	B	50	A	70	A	90	D	110	D	130	B	150	B
11	B	31	A	51	B	71	B	91	C	111	D	131	A	151	B
12	A	32	A	52	B	72	A	92	D	112	A	132	C	152	A
13	A	33	D	53	A	73	A	93	C	113	C	133	B	153	C
14	D	34	D	54	C	74	A	94	A	114	C	134	A	154	C
15	A	35	A	55	B	75	B	95	A	115	C	135	B	155	C
16	C	36	C	56	B	76	C	96	A	116	D	136	A	156	A
17	B	37	A	57	A	77	B	97	A	117	D	137	C	157	C
18	D	38	D	58	A	78	A	98	D	118	C	138	B	158	C
19	B	39	B	59	D	79	A	99	B	119	B	139	A	159	D
20	B	40	C	60	A	80	C	100	A	120	C	140	B	160	D

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UNIT 2

PRACTICE EXERCISE

BIOENERGETICS

1. **Cyclic photophosphorylation involves:**
   A) PS I
   B) PS I and PS II
   C) PS II
   D) P680

2. **Photosystem – I and photosystem – II are found in:**
   A) Stroma of chloroplast
   B) Grana of chloroplast
   C) Matrix of mitochondria
   D) Inner membrane of mitochondria

3. **Photophosphorylation means:**
   A) Formation of ATP from ADP in presence of light
   B) Formation of NADP
   C) Formation of ADP from ATP
   D) Formation of PGA

4. **Photosynthesis is an oxidation – reduction process in which:**
   A) Water is reduced and CO_2 is oxidized
   B) Water is oxidized and CO_2 is reduced
   C) Both CO_2 and water are oxidized
   D) Both CO_2 and water are reduced

5. **The first stable product of Calvin cycle is:**
   A) 3 – phosphoglycerate
   B) 1, 3 biphosphoglycerate
   C) Glyceraldehyde – 3 phosphate
   D) Ribulose – 5 – phosphate

6. **The incomplete breakdown of sugars in anaerobic respiration results in the formation of:**
   A) Fructose + H_2O
   B) Glucose + CO_2
   C) Alcohol + CO_2
   D) H_2O+CO_2

7. **The formation of Acetyl Co – A from pyruvic acid is the result of its:**
   A) Reduction
   B) Dehydration
   C) Dephosphorylation
   D) Oxidative decarboxylation

8. **In which of the following reactions of glycolysis, oxidation takes place?**
   A) Glucose 6-PO_4 to fructose 6-PO_4
   B) Glyceraldehyde 3 – phosphate to 1, 3 – bisphosphoglycerate
   C) 1, 3 – bisphosphoglycerate to 3 – phosphoglycerate
   D) 2 - phosphoglycerate to phosphoenol pyruvate

9. **In the Krebs cycle the FAD electron transport system operates during the conversion of:**
   A) Succinyl CoA to succinic acid.
   B) α- ketoglutarate to succinyl CoA
   C) Succinic acid to fumaric acid
   D) Fumaric acid to malic acid

10. **How many ATP and $NADPH_2$ are required for synthesis of one mole of glucose?**
    A) 12ATP and 12$NADPH_2$
    B) 12ATP and 18NADPH
    C) 18ATP and 12$NADPH_2$
    D) 9ATP and 6NADPH

11. **The molecular mechanism of oxidative phosphorylation takes place in conjunction with respiratory chain in the:**
    A) Outer membrane of mitochondrion
    B) Inner membrane of mitochondrion
    C) Matrix of mitochondrion
    D) Inner side of thylakoid membrane

12. **The process that uses membranes to couple redox reaction to ATP production:**
    A) Cyclic photophosphorylation
    B) Non – cyclic photophosphorylation
    C) Chemiosmosis
    D) Oxidative phosphorylation

13. **How many electrons flow from single molecule of H_2O to reduce NADP?**
    A) 2
    B) 3
    C) 4
    D) 5

14. **What is a copper containing protein:**
A) Cytochrome
B) Plastoquinone
C) Plastocyanin
D) Fd

15. **How many CO_2 molecules are inserted into one Calvin cycle per RUBP:**
A) 1
B) 2
C) 3
D) 4

16. **Most abundant protein on earth:**
A) Cellulose
B) Rubisco
C) Actin
D) Myosin

17. **What kind of fermentation is carried out by muscle cells:**
A) Alcohol
B) Lactic acid
C) Citric acid
D) Fumaric acid

18. **Cytochromes are electron transport intermediates containing Haem related:**
A) Coenzymes
B) Prosthetic group
C) Activator
D) Ribozyme

19. **$C_3H_6O_3$ is:**
A) Pyruvic acid
B) Lactic acid
C) Ethyl alcohol
D) Acetyl CoA

20. **In which movement of electrons energy is released to yield an ATP:**
A) cyt b $\rightarrow \frac{1}{2}O_2$
B) Cyt c $\rightarrow$ cyt a
C) Cyt b $\rightarrow$ cyt c
D) Cyt c $\rightarrow$ cyt b

21. **All are electron transport intermediates except:**
A) Cytochrome b
B) Cytochrome c
C) Cytochrome a
D) NADH

22. **Oxidative phosphorylation, synthesis of ATP in presence of oxygen occurs in:**
A) All types of cells
B) All anaerobic cells
C) All primitive cells
D) All aerobic cells

23. **Glycolysis is the breakdown of glucose into molecules of:**
A) Glycertae
B) Lactic acid
C) Pyruvate
D) Succinic acid

24. **Before entering into Krebs cycle, the pyruvate is first decarboxylated and oxidized into**
A) Alpha ketoglutaric acid
B) Citric acid
C) Glyceric acid
D) Acetic acid

25. **Z-scheme is:**
A) Non-cyclic phosphorylation
B) Cyclic phosphorylation
C) Cyclic oxidation
D) Oxidative phosphorylation

26. **The product(s) of cyclic phosphorylation is/are:**
A) ATP
B) NADP
C) NADP and ATP
D) NADP, ATP and oxygen

27. **Total NADH formed by one glucose molecule during Krebs cycle are:**
A) 6
B) 3
C) 8
D) 18

28. **One molecule of $FADH_2$ is produced in Krebs cycle during conversion of:**
A) Fumarate to malate
B) Succinate to fumarate
C) Malate to oxaloacetate
D) Alpha ketoglutarate to succinate

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29. **Every molecule of NADH, fed into ETC produces?**
A) 2ATP
B) 3ATP
C) 4ATP
D) 6ATP

30. **Final acceptor of electrons in respiratory chain is:**
A) Cytochrome A
B) Oxygen
C) Cytochrome a_3
D) Cytochrome C

31. **Light energy is converted into chemical energy through the formation of?**
A) $NADPH_2$
B) ATP
C) ATP and $NADPH_2$
D) RuBP

32. **Which of the following is the correct sequence of electron transport chain?**
A) Cytochrome b,c,a,a3
B) Cytochromes c,b,a3,a
C) Cytochromes a3,b,c,a
D) Cytochromes a,a3,b,c

33. **Which one of the following molecules of respiratory chain is found at the lowest energy level?**
A) Cytochrome a
B) Cytochrome b
C) Cytochrome a3
D) Coenzyme Q

34. **Which group is common in cyclic and non-cyclic phosphorylation?**
A) Plastoquinone, cytochrome complex, ferredoxin
B) Plastocyanin, cytochrome complex, plastoquinone
C) Ferredoxin, plastocyanin, plastoquinone
D) Cytochrome complex, plastocyanin, ferredoxin

35. **NADP+ reductase accept electron from?**
A) Plastoquinone
B) Ferredoxin
C) Cytochrome complex
D) Plastocyanin

36. **Coenzyme NAD+ is**
A) Mono nucleotide
B) Di nucleotide
C) Tri nucleotide
D) None of these

37. **Oxygen is released during**
A) Photolysis
B) Electron transport chain
C) Phosphorylation
D) Carboxylation

38. **Calvin cycle takes place in**
A) Thylakoid interior space
B) Outer membrane
C) Stroma
D) Mitochondrial matrix

39. **Out of _____molecules of G3P only one leaves the calvin cycle**
A) 6
B) 4
C) 5
D) 8

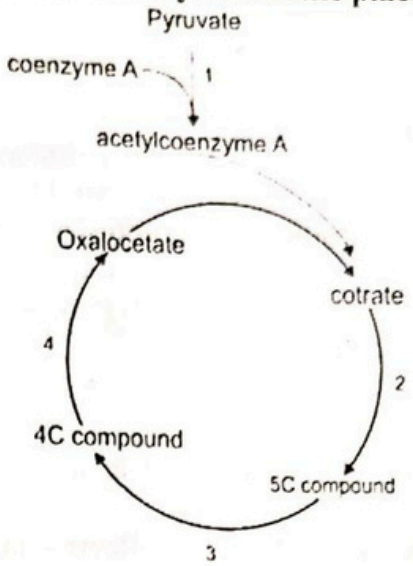
40. **Oxygen is used in which step of aerobic respiration:**
A) Glycolysis
B) Pyruvic acid oxidation
C) Krebs cycle
D) Respiratory chain

41. **Common step of aerobic and anaerobic respiration is:**
A) Glycolysis
B) Pyruvic acid oxidation
C) Krebs cycle
D) Respiratory chain

42. **Which substance enter and leave a mitochondrion during aerobic respiration?**

	Enters	Leaves
A	Acetyl coenzyme A	Carbon dioxide
B	ADP	Lactate
C	Glucose	Reduced NAD
D	Pyruvate	ATP

43. At which numbered stages does decarboxylation take place?



A) 1 and 2
B) 1,2 and 3
C) 1, 3 and 4
D) 1, 2, 3 and 4

44. Which molecule is common to both glycolysis and the Calvin cycle?
A) Hexose phosphate
B) NADP
C) Pentose phosphate
D) Triose phosphate

45. Before entering the tricarboxylic acid cycle, the pyruvate produced by the glycolytic pathway is first converted to:
A) Acetyl-coenzyme A.
B) Citrate.
C) Coenzyme A.
D) Ethanol

46. How many moles of carbon dioxide are produced by the complete oxidation of 1 mole of pyruvate?
A) 1
B) 2
C) 3
D) 4

47. Where are the enzymes located which are involved in the chemical reactions which occur during glycolysis?
A) In the fluid matrix of cytoplasm.
B) In the mitochondrial matrix
C) In the nuclear sap
D) On the cristae of a mitochondrion

48. Both glucose and appropriate enzymes are necessary for the process of glycolysis to begin. Which additional compound must also be present?
A) Acetyl coenzyme A
B) ATP
C) Pyruvate
D) Reduced NAD

49. For photosynthesis the green plants need
A) chlorophyll
B) light
C) CO_2 and water
D) all of these

50. Which of the following equation most adequately sums up the photosynthetic reaction?
A) $CO_2 + H_2O + Light \rightarrow CH_2O + O_2$
B) $C_6H_{12}O_6 + 6H_2O \rightarrow 6CO_2 + 6H_2O$
C) $6CO_2 + 6H_2O \rightarrow C_6H_{12}O_6 + 6O_2$
D) $6CO_2 + 12H_2O + Light \rightarrow C_6H_{12}O_6 + 6O_2 + 6H_2O$

51. If a photosynthesizing plant releases oxygen containing more than the normal amount of ^{18}O, it is concluded that the plant has been supplied with
A) $C_6H_{12}O_6$ containing ^{18}O
B) H_2O containing ^{18}O
C) CO_6 containing ^{18}O
D) Oxygen in the form of ozone

52. During photosynthesis the oxygen in glucose comes from
A) Water
B) Carbon dioxide
C) Oxygen in air
D) Both from water and carbon dioxide

53. **Photosynthesis consists of essentially two biological reaction systems, one followed by the other. The second of these systems does which of the following?**
A) Fixes carbon dioxide
B) Works only in the presence of light
C) Traps light energy
D) Synthesis of ATP

54. **Where do the energy capturing reactions of photosynthesis occur?**
A) Plasma membrane
B) Thylakoids
C) Cytoplasm
D) Stroma

55. **The process in which water is split during photosynthesis and essential for photosynthesis**
A) Hydrolysis
B) Hemolysis
C) Plasmolysis
D) Photolysis

56. **The first step in photosynthesis is**
A) Joining of 3 carbon atoms to form glucose
B) Ionization of water
C) Excitement of an electron of chlorophyll by a photon of light
D) Formation of ATP

57. **Which of the following wavelength is least effective in photosynthesis?**
A) Red light
B) Green light
C) Blue light
D) Violet

58. **The assimilatory power in photosynthesis is**
A) ATP
B) ATP and $NADPH_2$
C) $NADP^+$
D) ATP, NADP and CO_2

59. **The percentages of light energy fixed in photosynthesis is generally around**
A) 50%
B) 1%
C) 10%
D) 75%

60. **The final acceptor of electron during noncyclic electron pathway is**
A) PS I
B) PS II
C) ATP
D) $NADP^+$

61. **Photo-oxidation of water in photosynthesis is in association of**
A) Pigment System I
B) Pigment System II
C) Plastocyanin
D) Cytochrome B_6

62. **Photosystem II occurs in**
A) Stroma
B) Grana
C) On Surface of mitochondria
D) Inner membrane of mitochondria

63. **In the electron transport chain, which undergoes terminal oxidation**
A) Cytochrome b
B) Cytochrome a
C) Cytochrome a_3
D) Cytochrome c

64. **ATP formation during photosynthesis is known as**
A) Phosphorylation
B) Dephosphorylation
C) Oxidative phosphorylation
D) Substrate level phosphorylation

65. **During light reaction of photosynthesis which of the following phenomenon is observed during cyclic phosphorylation as well as noncyclic phosphorylation?**
A) Formation of ATP
B) Involvement of both PSI and PSII pigment systems
C) Release of NADPH
D) Release of O_2

66. **NADP is converted into $NADPH_2$ in**
A) Photosystem I
B) Non cyclic photophosphorylation
C) Photosystem II
D) Cyclic photophosphorylation

67. **During cyclic photophosphorylation energy molecules are obtained in the form of**
A) ADP
B) ATP
C) GTP
D) ATP and $NADPH_2$

68. **Dark reaction in photosynthesis is called so because**
A) It does not require light energy
B) Cannot occur during daytime
C) Occurs more rapidly at night
D) It can also Occur in darkness

69. **Calvin cycle occurs in**
A) Chloroplast
B) Mitochondria
C) Glyoximes
D) Cytoplasm

70. **Dark reaction of photosynthesis occurs in**
A) Stoma of the chloroplast
B) Space between the two membranes of the chloroplast
C) Membranes of the Stroma lamellae
D) Thylakoid membrane of the grana

71. **During dark reaction of photosynthesis**
A) CO_2 is reduced to organic compound
B) Chlorophyll is activated
C) 6C sugar is broken down into 3C sugar
D) Photolysis

72. **CO_2 joins the photosynthetic pathway during**
A) Dark Reaction
B) Photosystem I
C) Photosystem II
D) Photolysis

73. **The primary acceptor during CO_2 fixation in C_3 plants is**
A) Ribulose bisphosphate
B) Glycolate
C) Phosphoenolpyruvate
D) Triosephosphate

74. **The initial enzyme of Calvin cycle is**
A) Ribulose 1,5 bisphosphate carboxylase
B) Triosephosphate dehydrogenase
C) Cytochrome oxidase
D) Hexokinase

75. **Which one of the following would NOT limit photosynthesis?**
A) Oxygen
B) Carbon dioxide
C) Light
D) Chlorophyll

76. **The specific part of a chloroplast that releases O_2 is the**
A) Stroma
B) Cristae
C) Thylakoids
D) Chlorophyll

77. **Which of following does not occur during light reaction?**
A) Electron transfer
B) Release of O_2
C) Photolysis of H_2O
D) Release of H_2

78. **The source of O_2 liberated in photosynthesis is**
A) Photosynthetic enzyme
B) Carbohydrate present in leaf
C) Water
D) Carbon dioxide

79. **Which enzyme is most abundantly found on earth?**
A) Rubisco
B) Nitrogenase
C) Invertase
D) Catalase

80. **The source of hydrogen atom for the synthesis of glucose is**
A) NADP
B) $FADH_2$
C) H_2O
D) ATP

81. **The electron transport chain of photosynthetic process is**
A) In the stroma of chloroplast
B) Present in the outer membrane of chloroplast
C) Present in mitochondria
D) Bound to the thylakoid

O_2 is released during photolysis ↓ that occur in thylakoid membrane

82. **Pigment system I conducts**
A) Cyclic photophosphorylation
B) Oxidative phosphorylation
C) Photolysis of water
D) Non-cyclic photophosphorylation

83. **Cu is present in**
A) Plasmalemma
B) Plastoquinone
C) Ferredoxin
D) Plastocyanin

84. **How many turns of Calvin cycle yield one molecule of glucose?**
A) Four
B) Six
C) Eight
D) Two

85. **Which of the following absorb light energy for photosynthesis?**
A) Chlorophyll
B) Water molecule
C) O_2
D) RuBP

86. **In photosynthesis energy from light reaction to dark reaction is transferred in the form of**
A) ADP
B) AMP
C) NADPH
D) Chlorophyll

87. **Water releases protons. Twelve water molecules will release**
A) $24H^+$
B) $12H^+$
C) $48H^+$
D) $6H^+$

88. **Respiration in plants**
A) Often requires carbon dioxide
B) Is characteristic of all living cells
C) Occurs only during day
D) Results in the formation of amino acids

89. **What is the importance of respiration in plants?**
A) It provides oxygen to plants
B) It liberates energy
C) It liberates carbon dioxide
D) All the above

90. **The energy yield as a result of total oxidation of 1 glucose molecules during cellular respiration is to convert**
A) 34 molecules of ADP into 34 molecules of ATP
B) 30 molecules of ADP into 30 molecules of ATP
C) 38 molecules of ADP into 38 molecules of ATP
D) 32 molecules of ADP into 32 molecules of ATP

91. **The end products of respiration in plants are**
A) Starch and O_2
B) H_2O and energy
C) CO_2, H_2O and energy
D) Sugar and O_2

92. **In anaerobic respiration in plants**
A) Oxygen is given out
B) Carbon dioxide is given out
C) Carbon dioxide is taken in
D) Oxygen is taken in

93. **How many molecules of ATP are gained during anaerobic respiration of one molecule of glucose?**
A) 36
B) 2
C) 38
D) 4

94. **When a molecule of pyruvic acid is subjected to anaerobic oxidation and forms lactic acid, there is**
A) Gain of 2 ATP molecules
B) Loss of 3 ATP molecules
C) Loss of 6 ATP molecules
D) Gain of 3 ATP molecules

95. **Which of the molecules listed below is a product of fermentation of glucose by yeast?**
A) $(C_6H_{10}O_5)n$
B) C_2H_5OH
C) $C_6H_{12}O_2$
D) CH_3OH

96. **When yeast is producing wine, which of the following is NOT formed?**
A) Ethyl alcohol
B) Carbon dioxide
C) Acetyl-coenzyme A
D) Pyruvic acid

97. **When yeast ferments glucose the products are**
A) Ethanol and water
B) Water and carbon dioxide
C) Methanol and CO_2
D) Ethanol and carbon dioxide

98. **Fermentation is**
A) Incomplete oxidation of proteins
B) Complete oxidation of carbohydrates
C) Aerobic respiration
D) Incomplete oxidation of carbohydrates

99. **Which of the following statements is true of fermentation?**
A) It produces a net gain of NADH
B) It produces a net gain of ATP
C) It is an aerobic process
D) It produces more energy per glucose molecule than does aerobic respiration

6 ATP
4 ATP
− 2
2

100. **Glycolysis is process found in**
A) Most body cells
B) Eukaryotic cells
C) Anaerobic bacteria
D) Virtually all cells

101. **The common phase between aerobic and anaerobic respiration is called**
A) Glycolysis
B) Tricarboxylic acid cycle
C) Oxidative phosphorylation
D) Krebs cycle

102. **What is the end product of glycolysis?**
A) Pyruvic acid
B) C_2H_5OH
C) CO_2
D) Glucose

103. **How many molecules of oxygen gas are used during the glycolysis of one glucose molecule?**
A) 1
B) 16
C) 38
D) 0

104. **Incomplete oxidation of glucose into pyruvic acid with several intermediate steps is known as**
A) T.C.A pathway
B) Glycolysis
C) Calvin pathway
D) C_4 pathway

105. **Glyceraldehyde phosphate is oxidized during glycolysis. What happens to hydrogen atom and the electron that are removed during oxidation?**
A) They reduce NADP
B) They are transferred to pyruvic acid
C) They are eliminated in the form of methane
D) They reduce NAD^+

106. **In glycolysis the net gain is 2 ATP molecules and two molecules of**
A) $NADH_2$
B) $FADH_2$
C) $FMNH_2$
D) $NADPH_2$

107. **Which of the following is NOT true of glycolysis?**
A) The end products are water and carbon dioxide
B) Substrate-level phosphorylation takes place
C) ATP is used
D) ATP is formed

→ Add in notes.

108. **Krebs cycle takes place in**
A) Dictyosomes
B) Mitochondrial matrix
C) lysosomes
D) Vesicles of endoplasmic reticulum

109. **In the conversion of pyruvic acid to acetyl coenzyme-A, pyruvic acid gets**
A) Reduced
B) Broken into carbon fragments
C) Oxidized
D) Isomerized

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110. Krebs cycle starts with the formation of a 6-carbon atom compound by chemical reaction between
A) Succinic acid and acetyl-CoA
B) Fumaric acid and pyruvic acid
C) Oxaloacetic acid and acetyl-CoA
D) Malic acid and acetyl-CoA

111. The Krebs cycle begins with
A) acetyl CoA
B) Hydrochloric acid
C) Lysine
D) PGA

112. Most of the energy in the cell is liberated by oxidation of carbohydrates when
A) Glucose is converted into alcohol and CO_2
B) Sugar is converted into pyruvic acid
C) Pyruvic acid is converted into CO_2 and H_2O
D) Pyruvic acid is converted into CoA

113. Pyruvic acid before entering the Krebs cycle is changed to
A) Succinic acid
B) Citric acid
C) Malic acid
D) Acetyl-CoA

114. Pyruvate dehydrogenase is used in converting
A) Glucose to pyruvate
B) Pyruvic acid to lactic acid
C) Pyruvate to acetyl-CoA
D) Pyruvate to glucose

115. How many carbon atoms are in an oxaloacetic acid molecule, which joins with an acetyl group during step 1 of the Krebs cycle?
A) 6
B) 5
C) 4
D) 2

116. How many ATP molecules should be produced from the oxidation of a molecule of acetyl-CoA?
A) 15 ATP
B) 38 ATP
C) 12 ATP
D) 19 ATP

117. Link between glycolysis and Krebs cycle is
A) Succinic acid
B) Acetyl-CoA
C) Oxaloacetic acid
D) Citric acid

118. Which are of the following is the correct sequence in Krebs cycle?
A) Isocitric acid ⟶ Oxalosuccinic acid ⟶ α- Ketoglutaric acid
B) Oxalosuccinic acid ⟶ Isocitric acid ⟶ α- Ketoglutaric acid
C) α- Ketoglutaric acid ⟶ Isocitric acid ⟶ Oxalosuccinic acid
D) Isocitric acid ⟶ α- Ketoglutaric acid ⟶ succinic acid

119. The number of ATP molecules released in the complete oxidation of one molecule of pyruvic acid is
A) 2
B) 6
C) 15
D) 30

120. Organelles which are regarded as "power house" of the cell and in which the oxidative reactions of the respiratory process take place are
A) Chloroplasts
B) Endoplasmic reticulum
C) Mitochondria
D) Lysosomes

121. Synthesis of ATP in mitochondria takes place
A) In the matrix
B) At the cristae
C) At the outer membrane
D) In the intra cristae space

122. **During ATP synthesis electrons pass through which one of the following?**
A) Carbon dioxide
B) Water
C) Oxygen
D) Cytochromes

123. **Which of the following makes direct use of oxygen?**
A) Glycolysis
B) Krebs citric acid cycle
C) Electron transport chain
D) Fermentation

124. **Synthesis of ATP in mitochondria requires**
A) NADP
B) Oxygen
C) FMN
D) ATP

125. **To a living organism which of the following has the greater amount of available energy per molecule?**
A) NAD
B) ATP
C) ADP
D) CO_2

126. **Which one of the following is the universal hydrogen acceptor?**
A) ATP
B) FMN
C) CoA
D) NAD

127. **Which is the final electron acceptor in respiration?**
A) Cytochromes
B) Dehydrogenases
C) Oxygen
D) Hydrogen

128. **The inner membrane of a mitochondrion is very selective about what it allows to leave the organelle. One molecule that regularly passes out of a mitochondrion is**
A) ATP
B) Pyruvic acid
C) Glucose
D) Citric acid

129. **Within the mitochondrion, the proton gradient develops across the**
A) Outer membrane
B) Inner membrane
C) Intermembrane space
D) Matrix

130. **In oxidation of one molecule of glucose during respiration, 36 molecules of ATP are liberated as follows**
A) All 36 ATP molecules inside the mitochondria
B) 2 ATP molecules during glycolysis and 34 ATP during Krebs cycle
C) 2 ATP molecules during glycolysis and 34 ATP during respiratory chain
D) 2 ATP molecules outside the mitochondria and 34 ATP molecules inside the mitochondria

131. **Which one of the following processes releases a carbon dioxide molecule?**
A) Lactic acid fermentation
B) Alcohol fermentation
C) Glycolysis
D) Hydrolysis of glycogen

132. **When oxygen is not available to a muscle cell, NADH formed during glycolysis does not pass electrons to the electron transport system. Instead, it passes hydrogen atoms to**
A) Acetyl-coenzyme A
B) Fructose
C) ADP
D) Pyruvic acid

133. **The number of molecules of pyruvic acid formed from one molecule of glucose at the end of glycolysis is**
A) 1
B) 2
C) 3
D) 6

134. **In Krebs cycle the hydrogen atoms removed at succinate level are accepted by**
A) FAD
B) ADP
C) ATP
D) NAD

135. **Which is also formed along with ATP in glycolysis?**
A) $NADPH_2$
C) $FADH_2$

B) $NADH_2$ D) FAD

136. A molecule of $FADH_2$

A) Consumes one O_2 C) Forms 2 ATP

B) Consumes one H_2O molecule D) All the above

137. In aerobic respiration, most of the ATP is synthesized during

A) Oxidation of pyruvic acid C) Krebs cycle

B) Electron transport Chain D) Glycolysis

138. Respiratory enzymes are present in bacteria on

A) Mitochondria C) Plasma membrane

B) Golgi complex D) Endoplasmic reticulum

139. In glycolysis, during oxidation electrons are removed by

A) Molecular oxygen C) Glyceraldehyde-3-phosphate

B) ATP D) NAD^+

140. How any ATP are formed per glucose molecule in Krebs cycle?

A) 2 C) 6

B) 24 D) 28

141. The overall goal of glycolysis, Krebs cycle and the electron transport system is the formation of

A) ATP in one large oxidation reaction C) Nucleic acids

B) Sugars D) ATP in small stepwise units

142. A competitive inhibitor of succinic dehydrogenase is:

A) ∝ - ketoglutarate C) Malonate

B) Malate D) Oxaloacetate

ANSWER KEY

1	C	16	B	31	C	46	C	61	B	76	C	91	C	106	A	121	B	136	C
2	B	17	B	32	A	47	A	62	B	77	D	92	B	107	A	122	D	137	B
3	A	18	B	33	C	48	B	63	C	78	C	93	B	108	B	123	C	138	C
4	B	19	B	34	D	49	D	64	A	79	A	94	C	109	C	124	B	139	D
5	A	20	C	35	B	50	D	65	A	80	C	95	B	110	A	125	B	140	A
6	C	21	D	36	B	51	B	66	B	81	D	96	C	111	A	126	D	141	D
7	D	22	D	37	A	52	B	67	B	82	A	97	D	112	C	127	C	142	C
8	B	23	C	38	C	53	A	68	A	83	D	98	D	113	D	128	A		
9	C	24	D	39	A	54	B	69	A	84	D	99	B	114	C	129	B		
10	C	25	A	40	D	55	D	70	A	85	A	100	D	115	C	130	D		
11	B	26	A	41	A	56	C	71	A	86	C	101	A	116	C	131	B		
12	C	27	A	42	D	57	B	72	A	87	A	102	A	117	B	132	D		
13	A	28	B	43	B	58	B	73	A	88	B	103	D	118	D	133	B		
14	C	29	B	44	D	59	B	74	A	89	B	104	B	119	C	134	A		
15	A	30	B	45	A	60	D	75	A	90	C	105	D	120	C	135	B		

PAST PAPER MCQs 2008-2020

PHOTOSYNTHETIC PIGMENTS

Q.1 Chlorophylls absorb mainly _____ wavelength: (2008)
A) Yellow
B) Green
C) Violet-blue
D) Indigo

Q.2 Which part of chlorophyll molecule absorbs light? (2013)
A) Phytol
B) Porphyrin ring
C) Pyrrole
D) Thylakoid membrane

Q.3 Functional group of chlorophyll 'a' is: (2016)
A) $-CH_3$
B) -CHO
C) $-COOH$
D) $-OH$

Q.4 Chlorophyll molecule contains: (2017)
A) Mg^{++}
B) Ca^{++}
C) K^{+}
D) Na^{+}

Q.5 The tail of chlorophyll molecule is embedded in: (2017)
A) Membrane of mitochondria
B) Thylakoid membrane
C) Membrane of smooth endoplasmic reticulum
D) Membrane of rough endoplasmic reticulum

Q.6 Carotenoids absorb light of: (2017)
A) Yellow-orange range
B) Yellow-red range
C) Orange-red range
D) Blue-violet range

Q.7 Chlorophyll a and chlorophyll b differ from each other in only one of the functional groups; chlorophyll a has: (2017)
A) —CHO
B) —OH
C) $—CH_3$
D) $—NH_2$

Q.8 Pick the characteristic of tail of chlorophyll: (2017-Retake)
A) Hydrophilic
B) Hydrophobic
C) present in stroma
D) $C_{20}H_{20}$

Q.9 Which of the following color is maximum absorbed by chlorophyll: (2017-Retake)
A) Red
B) Green
C) Yellow
D) Indigo

Q.10 When we extract Carotenoids from its source we see that it is: (2018)
A) Yellow to orange red in color
B) Yellow green in color
C) Blue green in color
D) Violet in color

Q.11 The photosynthetic pigments of plants are arranged as clusters in thylakoid membranes. The reaction centers of these clusters consist of _____molecules. (2019)
A) ATP
B) Chlorophyll
C) Glucose
D) Carotenoids

ABSORPTION AND ACTION SPECTRA

Q.12 Instrument which is used to measure relative abilities of different pigments to absorb different wavelengths of light is called: (2010)
A) Spectrometer
B) Photometer
C) Barometer
D) Spectrophotometer

Q.13 Graph showing effectiveness of absorbed light is called: (2017-Retake)

A) Absorption spectrum
B) Action spectrum
C) Light spectrum
D) Dark spectrum

PHOTOSYNTHESIS

LIGHT DEPENDENT REACTION

Q.14 Which of the following is not the end product of non-cyclic photophosphorylation: (UHS-MODEL PAPER 2011)

A) Reduced NADP.
B) ATP.
C) O_2.
D) CO_2.

Q.15 Some electrons from the second primary acceptor may pass back to chlorophyll molecule by electron carrier system yielding ATP. This process is called: (2011)

A) Phosphorylation
B) Photophosphorylation
C) Non-cyclic photophosphorylation
D) Cyclic photophosphorylation

Q.16 Z-scheme is used for: (2011)

A) Non-cyclic photophosphorylation
B) Cyclic photophosphorylation
C) Both cyclic and non-cyclic
D) Oxidative phosphorylation

Q.17 The product (s) of cyclic photophosphorylation is/are: (2012)

A) ATP
B) NADP
C) NADP and ATP
D) NADP, ATP and O_2

Q.18 Each _____ consists of a light gathering antenna complex and reaction center. (2016)

A) Chlorophyll
B) Photosystem
C) Photon
D) Electron

Q.19 Photosystem 'I' has chlorophyll 'a' molecules which absorb maximum light of: (2016)

A) 680 nm
B) 780 nm
C) 700 nm
D) 580 nm

Q.20 Cyclic flow or C4 photosynthesis produces: (2016)

A) ATP and CO_2
B) ATP
C) Only CO_2
D) Only oxygen

Q.21 Splitting of water in sun light is called: (2017-Retake)

A) Lysis
B) Condensation
C) Photolysis
D) Hydrolysis

Q.22 NADP, nicotinamide adenine dinucleotide phosphate, is a carrier of: (2018)

A) Hydrogen
B) Phosphate
C) –OH group
D) O_2 group

Q.23 In chemiosmosis the proton (H+) pumps moves from. (2019)

A) Stroma to Lumen
B) Stroma to cytoplasm
C) Lumen to Stroma
D) Cytoplasm to Stroma

Q.24 Which of the following photosystem is involved in cyclic photophosphorylation? (2019)

A) PS I and PS II
B) PS II
C) PS III
D) PS I

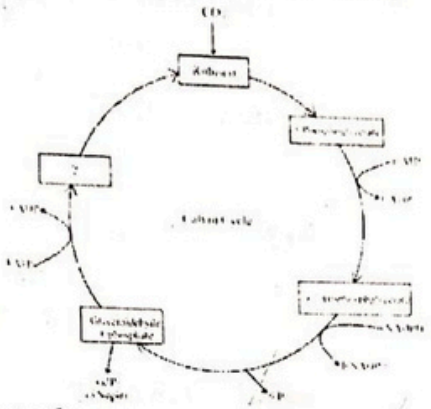
CamScanner

Q.25 Which of the following is a copper containing protein in electron transport chain? (2020)

A) Plastoquinone
B) Cytochrome-C
C) Plastocyanin
D) Ferredoxin

Q.26 In electron transport chain ATP synthesis takes place when electrons move from. (2020)

A) Primary elector Acceptor (PEA) to Plastoquinone (Pq)



B) Plastoquinone (Pq) to cytochromes
C) Cytochrome to Plastocyanin (Pc)
D) Plastocynin (pc) to Photosystem (Ps)

Q.27 Photophosphorylation takes place in the _____ of the chloroplasts: (2020)

A) Stroma
B) Granum
C) Inner membrane
D) Outer membrane

LIGHT INDEPENDENT REACTION

Q.28 Which of the following molecule is reduced by accepting hydrogen in Calvin Cycle? (2009)

A) Glyceraldehyde-3-phosphate
B) Ribulose bisphosphate
C) 3-Phosphoglycerate
D) 1,3-Bisphosphoglycerate

Q.29 Which of the following are the end products of light dependent stage, used in the Calvin cycle to change glycerate-3-phosphates into triose phosphates: (UHS-MODEL PAPER 2011)

A) NADPH + ATP
B) NADH + ATP
C) RuBp + ATP
D) O_2 + NADPH

Q.30 In light independent stage of photosynthesis the CO_2 combines with _____ to form an unstable 6-carbon intermediate: (2015)

A) Ribulose bisphosphate
B) Hexose sugar
C) Glycerate-3-phosphate
D) Glyceraldehyde-9-phosphate

Q.31 Immediate product formed after CO_2 fixation in Calvin cycle is: (2016)

A) Unstable 6-carbon compound
B) Unstable 5-carbon compound
C) Unstable 4-carbon compound
D) Unstable 3-carbon compound

Q.32 Calvin cycle occurs in: (2017)

A) Grana of chloroplast
B) Stroma of Chloroplast
C) Chlorophyll (reaction center)
D) Roots of plant

Q.33 Glycerate 3-phosphate in the presence of ATP and reduced NADP from light dependent stage is reduce to: (2017)

A) 3 carbon compound
B) Ribulose bisphosphate
C) 5 carbon compound
D) 6 carbon compound

(2017-Retake)

Q.34 **CO_2 acceptor in Calvin cycle is:**
A) Rubisco
B) RuBP
C) RuP
D) G_3P

(2018)

Q.35 **_____ is the site of light independent reaction:**
A) Thylakoid space
B) Thylakoid membrane
C) Grana
D) Stroma

Q.36 **The following flowchart depict the steps of the Calvin Cycle. Which option according to you fits in as the correct answer of the missing step?** (2019)
A) Hydrogenase
B) Oxaloacetate
C) Ribulose bisphosphate
D) Pyruvate

(2020)

Q.37 **: First stable compound during Calvin cycle is:**
A) 3-phosphoglycerate
B) Glyceraladehyde-3-Phosphate
C) Glyceraladehyde-3-Phosphate
D) Ribulose bisphosphate

(2020)

Q.38 **: What is the function of Ribulose?**
A) Intermediates in Photosynthesis
B) Respiratory fuel
C) Intermediates in cellular respiration
D) Component of DNA and RNA

CELLULAR RESPIRATION

Q.39 **Immediate source of energy for cellular metabolism is:** (2009)
A) Lipids
B) ATP
C) Carbohydrates
D) Proteins

Q.40 **Type of respiration which involves step by step breakdown of carbon chain molecules in the cell is called:** (2010)
A) External respiration
B) Cellular respiration
C) Pulmonary respiration
D) Cutaneous respiration

Q.41 **Oxidative phosphorylation, synthesis of ATP in presence of oxygen, occurs in:** (2011)
A) All types of cells
B) All anaerobic cells
C) All primitive cells
D) All aerobic cells

Q.42 **A biochemical process which occurs within a cell to breakdown complex compounds to produce energy is called:** (2013)
A) Respiration
B) Photosynthesis
C) Oxidation reduction
D) Photophosphorylation

Q.43 **In aerobic respiration:** (2018)
A) Pyruvate is completely oxidized to form oxygen and water
B) Pyruvate is converted to ethanol and carbon dioxide
C) Pyruvate carboxylated to produce citrate
D) Pyruvate is completely oxidized to form carbon dioxide and water

GLYCOLYSIS

Q.44 **The molecule formed after first phosphorylation during glycolysis is:** (2009)
A) Fructose-6-phosphate
B) Fructose-1, 6-bisphosphate
C) Glucose-1-phosphate
D) Glucose-6-phosphate

Q.45 **Which of the following is not the end product of glycolysis:**
(UHS-MODEL PAPER 2011)
A) Pyruvate.
B) ATP.
C) Oxaloacetate.
D) Reduced NAD.

Q.46 **Glycolysis is the breakdown of glucose into two molecules of:** (2011)
A) Glycerate
B) Lactic acid
C) Pyruvate
D) Succinic acid

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Q.47 The end product of glycolysis is: (2012)
A) ADP
B) Reduced FAD
C) Citric acid
D) Pyruvate

Q.48 Oxidative phase of glycolysis starts with dehydrogenation of: (2014)
A) Glucose
B) Fructose 6-phosphate
C) Glyceraldehyde 3-phosphate
D) NADH

Q.49 Which one of the following is the stage of cellular respiration for which oxygen is not essential? (2014)
A) Glycolysis
B) Pyruvate oxidation
C) Krebs cycle
D) Electron transport chain

Q.50 In glycolysis, glycerate 1, 3-bispohosphate is converted into glycerate-3-phosphate by losing _____ phosphate molecules: (2015)
A) 3
B) 2
C) 1
D) 4

Q.51 Glycolysis is conversion of: (2017-Retake)
A) Glucose to Acetyle CoA
B) Glucose to G_3P
C) Glucose to pyruvate
D) Glucose to Serine

Q.52 The enzymes required in glycolysis are present in: (2018)
A) Golgi Apparatus
B) Inner mitochondrial membrane
C) Cell cytoplasm
D) Matrix of mitochondria

Q.53 At the last step of glycolysis which of the following compound is formed: (2018)
A) Fructose phosphate
B) Ethyl alcohol
C) Pyruvic acid/ Pyruvate
D) Lactic acid

Q.54 Glycolysis takes place in the _____ of cell. (2019)
A) Golgi complex
B) Nucleus
C) Cytoplasm
D) Mitochondria

Q.55 How many molecules of ATP would be utilized for phosphorylation of one glucose molecule during glycolysis? (2019)
A) One
B) Four
C) Two
D) Three

Q.56 : The end product of glycolysis in anaerobic respiration is: (2020)
A) Ethanol and Carbon dioxide
B) Lactate
C) Pyruvate
D) Acetyl Co A

PYRUVIC ACID OXIDATION

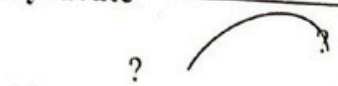
Q.57 Which of the following process does occur for the formation of acetyl Co-A from pyruvate: (UHS-MODEL PAPER 2011)
A) Decarboxylation.
B) Hydrogenation.
C) Carboxylation.
D) Deaminaiton.

Q.58 Before entering into Krebs cycle, the pyruvate is first decarboxylated and oxidized into: (2011)
A) Alpha ketogluteric acid
B) Citric acid
C) Glyceric acid
D) Acetic acid

Q.59 Pyruvate, the end product of glycolysis, moves from cytosol to mitochondrial matrix where it is oxidized into _____ producing CO_2 as a by-product: (2014)
A) Acetic acid (active)
B) Citrate
C) NAD
D) FAD

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Q.60 Pyruvate ⟶ Acetyl CoA: (2014)



A) $FAD^+ \rightarrow FADH$
B) $NAD^+ \rightarrow NADH$
C) $NADH \rightarrow NAH + H^+$
D) $FADH \rightarrow FAD + H^+$

KREBS CYCLE

Q.61 In what stage of aerobic respiration are 2-carbon molecules oxidized completely to carbon dioxide? (2008)
A) Glycolysis
B) ETC
C) Krebs cycle
D) Calvin cycle

Q.62 Krebs Cycle in mitochondria takes place in: (2009)
A) Cytosol
B) Matrix
C) Outer Membrane
D) Inner Membrane

Q.63 At the beginning of Krebs cycle, acetyl Co-A combines with which substance to form citrate (6-C): (UHS-MODEL PAPER 2011)
A) Oxaloacetate.
B) Oxoglutarate.
C) Fumarate.
D) Succinate.

Q.64 Total NADH formed by one glucose molecule during Krebs cycle are: (2012)
A) 6
B) 3
C) 8
D) 18

Q.65 One molecule of $FADH_2$ is produced in Krebs cycle during conversion of: (2012)
A) Fumarate → Malate
B) Succinate → Fumarate
C) Melate → Oxaloacetate
D) α-Ketoglutarate → Succinate

Q.66 In one turn, the Krebs cycle produces one molecule of ATP, one molecule of $FADH_2$, and _____ molecule/s of NADH: (2014)
A) 1
B) 2
C) 3
D) 4

Q.67 Malate is oxidized by _____ to oxaloacetate in Krebs cycle: (2015)
A) ATP
B) NADP
C) NAD
D) FAD

Q.68 Acceptor of acetyl CoA in Krebs cycle is: (2017-Retake)
A) Oxaloacetate
B) Citrate
C) Succinate
D) Fumarate

Q.69 The enzymes required for Krebs Cycle are found in _____: (2018)
A) Lysosomes
B) Matrix
C) Cytoplasm
D) F1 particle

ELECTRON TRANSPORT CHAIN

Q.70 The terminal electron acceptor in electron transport chain is: (2012)
A) Hydrogen
B) Iron
C) Cytochrome
D) Oxygen

Q.71 Final acceptor of electrons in respiratory chain is: (2013)
A) Cytochrome-A
B) Oxygen
C) Cytochrome-A_3.
D) Cytochrome-C

Q.72 Every molecule of NADH fed into electron transport chain produces: (2013)
A) 6 ATP
B) 2 ATP
C) 4 ATP
D) 3 ATP

Q.73 In electron transport chain, the electrons from NADH and $FADH_2$ are passed to: (2015)
A) Cytochrome a
B) Cytochrome a_3
C) Co-enzyme c
D) Co-enzyme Q

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Q.74 Carriers of the respiratory chain are located on: (2015)
A) Matrix of mitochondria
B) Outer membrane of mitochondria
C) Inner membrane of mitochondria
D) Cytoplasmic matrix

ANAEROBIC RESPIRATION AND ITS TYPES

Q.75 Which form of anaerobic respiration occurs in muscle cell of humans and animals during extreme physical activities? (2008)
A) Lactic acid fermentation
B) Alcoholic fermentation
C) Glycolysis
D) Pyruvic acid oxidation

Q.76 End products of yeast fermentation, bacterial fermentation and aerobic respiration are (2010)
A) Citric acid, lactic acid, carbon dioxide and water
B) Ethyl alcohol, citric acid and carbon dioxide
C) Ethyl alcohol, lactic acid, carbon dioxide and water
D) Methanol, lactic acid and citric acid

Q.77 The end product of anaerobic respiration in humans and other animals is: (2013)
A) Pyruvic acid
B) Ethanol
C) Lactic acid
D) Glucose

Q.78 : Which of the following processes does NOT need Pyruvic Acid as a substrate? (2020)
A) Alcoholic fermentation
B) Calvin cycle
C) Aerobic respiration
D) Lactic acid fermentation

ANSWER KEY

1.	C	11.	B	21.	C	31.	D	41.	D	51.	C	61.	C	71.	B
2.	B	12.	D	22.	A	32.	B	42.	A	52.	C	62.	B	72.	D
3.	A	13.	B	23.	A	33.	A	43.	D	53.	C	63.	A	73.	D
4.	A	14.	D	24.	D	34.	B	44.	D	54.	C	64.	A	74.	C
5.	B	15.	D	25.	C	35.	D	45.	C	55.	C	65.	B	75.	A
6.	C	16.	A	26.	B	36.	C	46.	C	56.	C	66.	C	76.	C
7.	C	17.	A	27.	B	37.	A	47.	D	57.	A	67.	C	77.	C
8.	B	18.	B	28.	D	38.	A	48.	C	58.	D	68.	A	78.	B
9.	A	19.	C	29.	A	39.	B	49.	A	59.	A	69.	B		
10.	A	20.	B	30.	A	40.	B	50.	C	60.	B	70.	D		

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PAST PAPER MCQs – 2021

Anaerobic respiration (respiration without oxygen)

Q.1 Fermentation products produced by the yeast are:

A. $H_2O + CO_2$ B. Methyl alcohol + CO_2
C. Methyl alcohol + CO_2 D. Ethyl alcohol + CO_2

Q.2 In anaerobic respiration only _____% of the energy present within the chemical bond of glucose is converted into ATP.

A. 1 B. 2
C. 3 D. 4

Q.3 In which of the following component of the body, lactic acid fermentation takes place?

A. Heart B. Brain
C. Liver D. Muscles

Q.4 In alcoholic fermentation pyruvic acid is broken down into?

A. Acetaldehyde B. Methyl alcohol
C. Ethyl alcohol D. Lactic Acid

Q.5 Pyruvate is broken down to_____ in yeast.

A. Acetyl CoA B. Alcohol
C. Lactic acid D. All of these

Q.6 Lactic acid is produced as a result of:

A. Glycolysis B. Anaerobic respiration
C. Aerobic respiration D. ALL A, B, C

Q.7 Which of the following is not respiration?

A. Breakdown of glucose B. Formation of glucose
C. Release of energy D. Exchange of gases

Electron transport chain

Q.8 Oxygen plays ___ role in respiration.

A. It combines with acetyl-CoA at the start of the Krebs cycle
B. It plays no role
C. It is given off as a by-product during the oxidation of pyruvates
D. It is the final electron acceptor at the end of the electron transport chain

Q.9 What is the product of the ETC in animals?

A. Oxygen B. Carbon dioxide
C. Water D. All of these

Q.10 Cytochromes are electron transport intermediates containing:

A. Myoglobin B. Haem
C. Globulin D. Fibrin

Q.11 How does the electron transport system generate ATP?

A. Symbiosis B. Chemiosmosis
C. Both A and B D. None of these

Q.12 What is the end product of the ETC in animals?

A. ATP B. Carbon dioxide
C. Water D. Both A and C

Q.13 Final acceptor of electrons in respiratory chain is?

A. NADH B. Cytochrome a3
C. Water D. Oxygen

Q.14 Cytochrome a is oxidised by which of the following in ETC?

A. Carbon dioxide B. Oxygen
C. ATP D. Cytochrome a_3

Q.15 What is the copper containing protein involved in the ETC in plants?
A. Pq B. Pc
C. Pt D. Po

Q.16 Coenzyme Q is oxidized by which enzyme?
A. Coenzyme c B. Coenzyme q
C. Cytochrome b D. Cytochrome a

Q.17 Cytochrome b is reduced by:
A. Cytochrome c B. Coenzyme Q
C. NADH D. Cytochrome a

Q.18 Cancer cells require large amounts of ATP. Which of the following produce high number of ATP?
A. Glycolysis B. Krebs cycle
C. Oxidative phosphorylation D. Electron transport chain

Q.19 Enzymes for oxidative phosphorylation are present on:
A. Cristae B. Inner compartment
C. Outer compartment D. Outer membrane

Q.20 Electrons from NADH accepted by oxygen forms how many ATPs?
A. 2 B. 3
C. 4 D. 1

Q.21 Electron transport chain occurs in:
A. Inner membrane of mitochondria
B. Outer compartment of mitochondria
C. Thylakoid membrane
D. Both A and C

Q.22 Terminal carrier of cytochrome complex present in ETC:
A. Q B. C
C. a D. None

Q.23 NADH is oxidized by:
A. Co-enzyme Q B. Cytochrome b
C. Cytochrome c D. Cytochrome a

Glycolysis/glycolytic pathway/aerobic respiration

Q.24 $FADH_2$ is produced during:
A. Glycolysis B. The oxidation of pyruvates
C. Krebs cycle D. All of these

Q.25 Complete breakdown of glucose molecule takes place in which of the following?
A. Alcoholic fermentation B. Lactic acid fermentation
C. Aerobic respiration D. None of these

Q.26 Glycolysis takes place in:
A. Nucleus B. Cytosol
C. Mitochondria D. Ribosomes

Q.27 Phosphofructokinases enzyme converts fructose-6-phosphate into:
A. Fructose-1, 4-phosphate B. Fructose-1,6-bisphosphate
C. Bisphosphate D. Fructose

Q.28 What is the coenzyme that facilitates the oxidation of fumarate?
A. FAD B. $PADH_2$
C. NAD D. NADPH

Q.29 Where does the first stage of cellular respiration occur?
A. Cytosol B. Membrane surface
C. Nucleus D. All of these

Q.30 **Acetyl CoA is completely oxidized to carbon dioxide and liberate:**
A. NADH and FAD
B. NADP and FADP
C. ATP
D. ATP, NADH and FADH

Q.31 **Which process can take place in the presence and absence of oxygen?**
A. Glycolysis
B. Pyruvic acid oxidation
C. Krebs cycle
D. Electron transport chain

Q.32 **What energy rich organic compound is produced as a result of the Calvin cycle?**
A. NADPH
B. CO_2
C. ATP
D. Glucose

Q.33 **Oxaloacetate combines with which molecule to enter the Krebs cycle again?**
A. ATP
B. NADPH
C. FAD
D. Acetyl CoA

Q.34 **Hexokinase plays role in:**
A. Krebs cycle
B. Electron transport chain
C. Glycolysis
D. Pyruvate oxidation

Q.35 **Glucose is converted to _____ before entering Krebs cycle.**
A. Pyruvate
B. Lactic acid
C. Acetyl CoA
D. Ethanol

Q.36 **Hexokinase is the enzyme found in**
A. Glycolysis and pentose pathway
B. Pentose pathway only
C. Glycolysis only
D. Krebs cycle

Q.37 **Succinate is oxidized and form:**
A. FAD
B. FADH
C. $FADH_2$
D. $NADH_2$

Q.38 **If a molecule is reduced it gains:**
A. Energy
B. Electrons
C. Hydrogen protons
D. All of above

Q.39 **ATP synthase is located in the of the mitochondrion:**
A. Intermembrane space
B. Outer membrane
C. Matrix
D. Inner membrane

Q.40 **What is the final product of the Krebs cycle?**
A. Malate
B. Succinate
C. Oxaloacetate
D. Fumarate

Q.41 **From one pyruvate passing through Krebs cycle, how many NADH are formed?**
A. 1
B. 2
C. 3
D. 4

Q.42 **Cellular respiration is essentially what type of process:**
A. Oxidation
B. Reduction
C. Redox
D. None of the above

Q.43 **What are products of respiration in plants?**
A. CO_2 and H_2O
B. CO_2, H_2O and ATP
C. $C_6H_{12}O_6$ and H_2O
D. None

Q.44 **The pay-off phase of glycolysis conserve:**
A. Molecules of glucose
B. ATP
C. Molecules of fructose
D. water

Q.45 **Fatty acid release considerable amount of energy in oxidation during:**
A. Calvin cycle
B. Krebs cycle
C. Dark reaction
D. Light reactions

Q.46 How many carbons does citrate have in the Krebs cycle?
A. 5 B. 6
C. 8 D. 4

Q.47 What is formed at the end of the preparatory phase of glycolysis?
A. G_3P B. Dihydroxyacetone phosphate
C. Pyruvate D. Both A and B

Q.48 End product of citric acid cycle:
A. Pyruvate B. CO_2 and H_2O
C. CO_2 D. Lactic acid

Q.49 Oxaloacetate contains how many carbon atoms?
A. 4 B. 5
C. 6 D. 2

Q.50 $FADH_2$ is produced in?
A. Glycolysis B. Pyruvic acid oxidation
C. Krebs cycle D. None

Q.51 Hans Krebs discovered_____.
A. Glycolysis B. Fermentation
C. Pyruvate oxidation D. Citric acid cycle

Light dependent and light independent phases/reactions

Q.52 Which of the following organisms have the greatest problem with photorespiration?
A. C_4 plants B. Heterotrophs
C. C_3 plants D. CAM plants

Q.53 In which stage of photosynthesis, ATP and NADPH are converted to ADP+Pi and $NADP^+$?
A. Light dependent reaction B. Light independent reaction
C. Both of these D. None of above

Q.54 The stage of photosynthesis that actually produces sugar is_____.
A. Calvin cycle B. Photosystem I
C. Photosystem II D. The light reaction

Q.55 ATP molecules are consumed during which process?
A. Glycolysis B. Light dependent phase
C. Krebs cycle D. None

Q.56 Molecular oxygen is released during:
A. Calvin cycle B. Light reactions in photosynthesis
C. Krebs cycle D. Glycolysis

Q.57 When is sugar formed in photosynthesis?
A. Light independent reactions B. Light dependent reactions
C. Both A and B D. None of these

Q.58 Which one is a light gathering structure?
A. Antenna complex B. Reaction center
C. Photosystem D. None of these

Q.59 Molecular formula of chlorophyll b is:
A. $C_{55}H_{10}O_4N_6Mg$ B. $C_{55}H_{70}O_6N_5Mg$
C. $C_{55}H_{71}O_6N_4Mg$ D. $C_{55}H_{70}O_6N_4Mg$

Q.60 Light reaction takes place in/on:
A. Chloroplast B. Stroma
C. Thylakoids D. Grana

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Q.61 Calvin cycle is:
A. Inhibited by light
B. Supported by light
C. Independent of light
D. Dependent upon light

Q.62 RuBisCO converts addition of _____ with RUBP to glyceraldehyde 3-phosphate.
A. ATP
B. O_2
C. NADH
D. CO_2

Q.63 Location of dark reactions in chloroplast:
A. Inner membrane
B. Grana
C. Stroma
D. Thylakoid

Q.64 How many number of carbon atoms are present in a molecule of RUBISCO?
A. 4
B. 6
C. 5
D. 7

Q.65 How many carbon atoms are present in Ribulose phosphate?
A. 5
B. 4
C. 6
D. 3

Q.66 It moves in cyclic manner in cyclic photophosphorylation:
A. Oxygen
B. Electrons
C. ATP
D. NADPH

Q.67 How many molecule/s of carbon dioxide enter the Calvin cycle to produce one molecule of carbohydrate?
A. 2
B. 3
C. 4
D. 1

Q.68 Which enzyme is found in the thylakoid membrane that facilitates chemiosmosis?
A. ATP ligase
B. ATP kinase
C. ATP synthase
D. ATP dehydrogenase

Q.69 Out of the 6 molecules of G_3P, how many molecules are used to make glucose?
A. 1
B. 3
C. 3
D. 4

Q.70 What does ATP provide during photosynthesis?
A. Mechanical energy
B. Physical energy
C. Chemical energy
D. All of these

Q.71 Which reaction is catalysed by the enzyme RuBisCO?
A. Carboxylation of ribulose bisphosphate (RuBP)
B. Conversion of triose phosphate (TP) to ribulose phosphate (RuP)
C. Oxidation of giycerate-3 -phosphate (GP)
D. Reduction of glycerate-3-phosphate (GP)

Q.72 Enzymes for light-dependent reactions are present in:
A. Outer membrane of the chloroplast
B. Inner membrane of the chloroplast
C. Stroma of the chloroplast
D. Thylakoid membranes of the chloroplast

Q.73 The water splitting step of photosynthesis is called?
A. Chemiosmosis
B. Hydrolysis
C. Photolysis
D. Photosynthesis

Q.74 In photosynthesis dark reaction, is called so because:
A. It occurs in dark
B. It does not require light energy
C. It cannot occur during daytime
D. It occurs more rapidly at night

Q.75 How much net gain of G_3P is obtained after one Calvin cycle?
A. 3
B. 6
C. 2
D. 1

Q.76 Which one of these occur in dark reactions of photosynthesis?
A. Formation of ATP
B. Release of oxygen
C. Release of hydrogen
D. Synthesis of PGAL

Q.77 The path of electrons through the two photosystems is called?
A. S scheme
B. X scheme
C. Z scheme
D. Y scheme

Q.78 The G_3P is the end product of:
A. Krebs cycle
B. Calvin cycle
C. Chemiosmosis
D. Electron transport chain

Q.79 Cooperation of the two photosystems of the chloroplast is required for_____.
A. ATP synthesis
B. Reduction of NADP
C. Cyclic photophosphorylation
D. Oxidation of the reaction center of photosystem I

Q.80 The part of chloroplast where CO_2 is fixed to manufacture sugar is?
A. Stroma
B. Grana
C. Thylakoid
D. Outer membrane

Q.81 $NADPH_2$ provides which of the following?
A. Assimilatory power
B. Energized electron
C. Chemical energy
D. Both A and B

Q.82 The ATP synthesis in plants during the ETC is called?
A. Photophosphorylation
B. Photolysis
C. Chemiosmosis
D. All of these

Q.83 Which molecule passes the mitochondrial membrane to begin the Krebs cycle?
A. ATP
B. Acetyl CoA
C. NADH
D. ADP

Q.84 The most important photosynthetic pigment is:
A. Chlorophyll a
B. Chlorophyll b
C. Xanthophyll
D. Carotenes

Q.85 For every 3 molecules of carbon dioxide in Calvin cycle how much G3P is produced?
A. 6
B. 2
C. 4
D. 8

Q.86 Find out the correct sequence for movement of electrons during the light dependent reaction:
A. p680, p700, water, NADP
B. Water, p700, NADP, p680
C. p700, p680, NADP, water
D. Water, p680, p700, NADP

Q.87 Photosystem I absorbs maximum wavelength of light?
A. 700
B. 600
C. 750
D. 770

Q.88 Which two reactions occur during photophosphorylation?
A. ATP is hydrolyzed and NADP is reduced
B. ATP is hydrolyzed and NADPH is oxidized
C. ATP is synthesized and NADP is reduced
D. ATP is synthesized and NADPH is oxidized

Q.89 Photosystems are located in:
A. Stroma
B. Chloroplast envelope
C. Thylakoid membranes
D. Intergranam

Q.90 What are the different stages of the Calvin cycle?
A. Carbon fixation
B. RUBP
C. Reduction
D. A and C

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Q.91 Carbon dioxide is fixed in
A. Light reaction
B. Dark reaction
C. Aerobic respiration
D. Anaerobic respiration

Q.92 The reaction of carbon dioxide and RUBP is catalyzed by?
A. ATP synthase
B. Globulin
C. RuBisCo
D. NADH dehydrogenase

Q.93 Chlorophylls are found embedded in the_____ membranes.
A. Stroma
B. Grana
C. Thylakoid
D. Intergrana

Q.94 Which statement correctly outlines some of the main events in photosynthesis?
A. A 5C carbohydrate accepts carbon dioxide and is then reduced by NADPH derived from photosynthesis
B. A 3C carbohydrate is regenerated and reduced by hydrogen molecules derived from photophosphorylation
C. Photolysis uses light to produce reduced NADP and oxygen which are used to reduce a 3C carbohydrate
D. Photolysis produces NADPH and ATP which are used to reduce a 5C carbohydrate

Oxidative phosphorylation /cyclic and non- cyclic phosphorylation

Q.95 Cooperation of the two photosystems of the chloroplast is required for:
A. ATP synthesis
B. Reduction of $NADP^+$
C. Cyclic photophosphorylation
D. Oxidation of the reaction center of photosystem I

Q.96 It is most energy rich compound:
A. $FADH_2$
B. ATP
C. NADH
D. GTP

Q.97 The synthesis of ATP in the presence of oxygen is called:
A. Respiration
B. Calvin cycle
C. Oxidative phosphorylation
D. Chemiosmosis

Q.98 Where does the molecular mechanism of oxidative phosphorylation take place?
A. Cytosol
B. Mitochondria
C. Nucleus
D. All of these

Photosynthesis

Q.99 Photosystem II has molecules which absorbs maximum light of:
A. 680 nm
B. 100 nm
C. 700 mil
D. 670nm

Q.100 The point at which there is no net exchange of gases between leaves and atmosphere is known as?
A. Neutral point
B. Compensation point
C. Parallel point
D. Competitive point

Q.101 If more oxygen is present, the RuBisCO starts:
A. Respiration
B. Photorespiration
C. Carboxylase
D. None of these

Q.102 Which type of light causes the highest rate of photosynthesis?
A. Blue
B. Red
C. Orange
D. Violet

Q.103 About what % of photosynthesis is carried by terrestrial plants, while rest occurs in ocean, lakes, and ponds
A. 40
B. 10
C. 20
D. 30

Q.104 Which cells absorb carbon dioxide in leaf?
A. Neutrophil cells
B. Basophil cells
C. Mesophyll cells
D. All of these

Q.105 Bacteriochlorophylls do not include which of the following?
A. Chlorophyll a
B. Chlorophyll c
C. Chlorophyll b
D. All of these

Q.106 The part of chlorophyll molecule that is embedded in the core of thylakoid membrane is:
A. Hydrophilic
B. Hydrophobic
C. Both of these
D. None of these

Q.107 The electrons from Ferrodoxin (Fd) to $NADP^+$ are transferred by which enzyme?
A. NADP Oxidase
B. NADP reductase
C. ATP synthase
D. Both A and B

Q.108 Molecular formula of chlorophyll a is?
A. $C_{55}H_{10}O_4N_6Mg$
B. $C_{55}H_{70}O_6N_5Mg$
C. $C_{55}H_{71}O_6N_4Mg$
D. $C_{55}H_{72}O_5N_4Mg$

Q.109 Wavelength of light that is mainly absorbed by the plants:
A. Orange
B. Red
C. Green
D. Both A and B

Q.110 The first action spectrum was obtained by:
A. T.W Engelmann
B. Malleus
C. TW Inws
D. W Stapes

Q.111 First action spectrum was obtained by using:
A. Algae
B. Fungi
C. Bacteria
D. *Spirogyra*

Q.112 Early organisms used _____ as a source of hydrogen.
A. Water
B. Hydrogen sulphide
C. Hydrogen cyanide
D. Hydrogen potassium permanganate

Q.113 Water insoluble photosynthetic pigment:
A. Chlorophyll a
B. Chlorophyll b
C. Carotenoids
D. All of these

Q.114 Photosynthesis is absent in:
A. Seaweeds
B. Mushrooms
C. Purple sulphur bacteria
D. Angiosperms

Q.115 What is the color of xanthophyll pigment?
A. Yellow
B. Red
C. Orange
D. Blue

Q.116 Chlorophyll b is found in which organism?
A. Green plants
B. Green algae
C. Animals
D. Both A and B

Q.117 What do two peaks in action spectrum represent?
A. Light absorption
B. Consumption of carbon dioxide
C. Light emission
D. Both A and B

Q.118 These all are inorganic compounds except:
A. NO_2
B. $C_6H_{12}O_6$
C. H_2O
D. H_2SO4

Q.119 What is generated during noncyclic flow of photosynthesis?
A. ATP
B. NADPH
C. Oxygen
D. All of these

Q.120 Which is the correct order of energy transfer from accessory pigments to main photosynthetic pigment?
A. Carotenoids, Chlorophyll a, Chlorophyll b.
B. Chlorophyll b, Carotenoids, Chlorophyll a.
C. Carotenoids, Chlorophyll b, Chlorophyll a.
D. Chlorophyll a, Chlorophyll b, Carotenoids.

Q.121 What type of plant cells carry out photosynthesis?
A. Sclerenchymatous cells
B. Parenchymatous cells
C. Chlorenchymatous cells
D. Both B and C

Q.122 Which chemical reactions occur during the process of photosynthesis?
A. Oxidation
B. Reduction
C. Both A and B
D. None of these

Q.123 What is reduced during sugar production in photosynthesis?
A. NADH
B. DNA
C. Oxygen
D. None of these

Q.124 Photosynthesis is process in which _____ compounds of carbon and hydrogen are reduced to carbohydrate like (glucose) using light energy.
A. Organic
B. Energy poor
C. Energy rich
D. Reduced

Q.125 Magnesium is important for the synthesis of which of the following?
A. Chlorophyll
B. Protein synthesis
C. Glucose metabolism
D. All of these

Q.126 Chlorophyll is insoluble in?
A. Carbon tetrachloride
B. Carbon chloride
C. Organic Solvents
D. None of these

Q.127 Van Neil's hypothesis about the production of oxygen during photosynthesis was based on the study and investigations on?
A. Bacteria
B. Algae
C. Protonema
D. Cyanobacteria

Q.128 Rate of photosynthesis does not depend upon:
A. Quality of light
B. Intensity of Light
C. Duration of Light
D. Temperature

Q.129 Quantitative study of energy relationships in biological systems obeys:
A. Bioenergetics
B. Laws of thermodynamics
C. Laws of thermochemistry
D. Laws of chemical energetic

Q.130 The graph that shows relative effectiveness of different wavelengths in photosynthesis is?
A. Actin spectrum
B. Action spectrum
C. Absorption spectrum
D. Emission spectrum

Q.131 The percentage of light absorbed by the leaf is:
A. 0.2
B. 0.15
C. 0.05
D. 0.01

Q.132 Which of the following statement about the head of a chlorophyll molecule is incorrect?
A. It is a porphyrin ring or tetrapyrrole ring structure
B. It is flat, square and light absorbing
C. Composed of carbon and nitrogen atoms with magnesium as central metal ion,
D. It is hydrophobic

Q.133 What does $NADPH_2$ provide during photosynthesis?
A. Energized electron
B. Uncharged electron
C. Energy
D. All of these

Q.134 Carotenoids perform protective function in which of the following organism?
A. Animal
B. Plants
C. Both A and B
D. None of these

Q.135 Chlorophyll molecule contains which of the following as a central metal ion?
A. Fe^{2+}
B. Zn^{2+}
C. Cu^{2+}
D. Mg^{2+}

Q.136 In all plants the major sites of photosynthesis are:
A. Leaf
B. Stems
C. Roots
D. Branches

Q.137 The organisms able to use sunlight directly as a source of energy are:
A. Plants
B. Animals
C. Fungi
D. Omnivores

Q.138 Which one is not an energy releasing process?
A. Glycolysis
B. Photosynthesis
C. Respiration
D. Krebs cycle

Q.139 Which pair of areas within a chloroplast will show the steepest pH gradient between them?
A. DNA and stroma
B. Ribosome and stroma
C. Stroma and the space between the outer and inner membrane
D. Stroma and the thylakoid interior space

Q.140 Excretory products of autotrophic plants:
A. CO_2
B. O_2
C. H_2O
D. All of these

Q.141 Autotrophs live best in _____ environment:
A. Wet
B. Terrestrial
C. Organic
D. Inorganic

Production of ATP

Q.142 It is false about ATP:
A. It is a RNA nucleotide
B. It provides energy for cellular reactions
C. It is produced by endoplasmic reticulum
D. All of these

Q.143 Breaking of terminal phosphate of ATP releases about Kcal of energy?
A. 6.1
B. 6.3
C. 7.1
D. None of these

Q.144 Primary function of ATP is:
A. Act as catalyst
B. Allosteric modulation of enzymes
C. Energy source
D. To store energy

Q.145 One of the most important molecules found in living organisms is ATP. What is its major function?
A. Energy source of the cell
B. Coenzyme
C. Cofactor
D. Both A and B

Q.146 Which one is dollar of the cell?
A. ATP
B. DNA
C. Chromosome
D. Enzyme

Role of light, water, CO_2/Factors affecting photosynthesis

Q.147 At which times there is no net gaseous exchange between leaves anal the atmosphere?
A. Day
B. Night
C. Dawn and Dusk
D. Midnight

Q.148 Which of the following is a compensation point?

A. Leaves respire and utilize O_2 and release CO_2
B. Photosynthesis and respiration occur at same rate. So there is not net exchange of gases between atmosphere and plants.
C. Rate of photosynthesis increases, so do the O_2 production, with a net release of oxygen coupled with the uptake of CO?
D. Rate of respiration becomes more than rate of photosynthesis. 16 Net yield of H_2O in Photosynthesis is

Q.149 Photosynthetic pigments are organized in form of?

A. Clusters
B. Stacks
C. Photosystems
D. Both a and b

Out of Syllabus

Q.150 Evolution of pollen tube is parallel to the evolution of which of the following?

A. Leaf
B. Flower
C. Seed
D. Plant

Q.151 Which cells regulate the opening and closing of the stomata?

A. Neutrophil cells
B. Guard cells
C. Mesophyll cells
D. Basophil cells

ANSWER KEY

1	D	21	D	41	C	61	C	81	B	101	B	121	C	141	D
2	B	22	C	42	C	62	D	82	A	102	B	122	C	142	C
3	D	23	A	43	B	63	C	83	B	103	B	123	D	143	D
4	C	24	C	44	B	64	C	84	A	104	C	124	B	144	C
5	B	25	C	45	B	65	A	85	A	105	D	125	A	145	A
6	B	26	B	46	D	66	B	86	D	106	B	126	D	146	A
7	B	27	B	47	D	67	B	87	A	107	B	127	A	147	C
8	D	28	A	48	B	68	C	88	C	108	D	128	A	148	B
9	C	29	A	49	A	69	A	89	C	109	D	129	B	149	C
10	B	30	D	50	C	70	C	90	D	110	A	130	B	150	C
11	B	31	A	51	D	71	A	91	B	111	D	131	D	151	B
12	C	32	D	52	C	72	D	92	C	112	B	132	D		
13	D	33	D	53	B	73	C	93	C	113	D	133	A		
14	D	34	C	54	A	74	B	94	A	114	B	134	C		
15	B	35	A	55	A	75	D	95	B	115	A	135	D		
16	C	36	A	56	B	76	D	96	C	116	D	136	A		
17	B	37	C	57	A	77	C	97	C	117	B	137	A		
18	C	38	D	58	A	78	B	98	B	118	B	138	B		
19	A	39	D	59	D	79	B	99	A	119	D	139	D		
20	B	40	C	60	C	80	A	100	B	120	C	140	B		

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UNIT 3

PRACTICE EXERCISE

BIOLOGICAL MOLECULE

1. **Polysaccharides are:**
   A) Insoluble in hot Water
   B) Sparingly soluble in hot water
   C) Sparingly soluble in cold water
   D) Insoluble in hot water

2. **Glycogen is stored in:**
   A) Liver
   B) Spleen
   C) W.B.C.
   D) Skin Cells

3. **Percent amount of carbohydrates in a Bacterial cell:**
   A) 4
   B) 3
   C) 2
   D) 1

4. **What kind of Glycosidic linkage is found in sucrose?**
   A) 1,6
   B) 1,4
   C) 2,6
   D) 1,2

5. **Blood contains _____ percent glucose:**
   A) 0.8%
   B) 0.08%
   C) 0.06%
   D) 6%

6. **Cotton is the pure form of:**
   A) Cellulose
   B) Glycogen
   C) Wax
   D) Protein

7. **Which of the following does not contain amino acids?**
   A) Carbonic anhydrase
   B) Glycogen
   C) Haemoglobin
   D) Insulin

8. **Select the one which show characteristics like polymer of beta glucose, 1,4-glycosidic linkage?**
   A) Glycogen
   B) Amylopectin
   C) Cellulose
   D) Amylose

9. **The number of OH groups in glucose is:**
   A) 4
   B) 5
   C) 6
   D) 7

10. **Monosaccharide's are major components of:**
    A) DNA, ATP, Ribulose bisphosphate and Cysteine
    B) DNA, NAD and Insulin
    C) DNA, NADP, ATP and Ribulose bisphosphate (Rubisco)
    D) DNA, RNA and Myosin

11. **Both glucose and fructose are hexoses, glucose makes a _____ whereas fructose make a _____ in a solution, respectively:**
    A) Pyran, Pyran
    B) Furan, Furan
    C) Furan, pyran
    D) Pyran, Furan

12. **A glucopyranose having hydroxyl group –OH, on carbon atom 1, below the ring is called:**
    A) α glucose
    B) β glucose
    C) D glucose
    D) L glucose

13. **The specific heat of vaporization of water is _____ Kcal/kg:**
    A) 374
    B) 474
    C) 574
    D) 674

14. **Glycylalanine has how many peptide linkages:**
A) One C) Three
B) Two D) No one

15. **It is not fibrous:**
A) Haemoglobin C) Silk
B) Myosin D) Fibrin

16. **Most abundant protein:**
A) Keratin C) Dehydrogenases
B) Albumin D) Rubisco

17. **Glycoproteins & glycolipids are structural integral component of:**
A) Ribosome C) Cell wall
B) Golgi bodies D) Plasma membrane

18. **Enzymes, antibodies, hormones and hemoglobin are examples of:**
A) Fibril proteins C) Fibrous proteins
B) Globular proteins D) Tough proteins

19. **Blood group antigen contains:**
A) Glycoproteins C) Glycolipids
B) Phospholipids D) Sphingolipids

20. **Over 50% of the total dry weight of a cell consists of:**
A) Lipids C) Carbohydrates
B) Proteins D) Nucleic acids

21. **Number of peptide bonds involved in stabilization of a molecule of insulin is:**
A) 51 C) 49
B) 50 D) 48

22. **Spider's web is a:**
A) Globular protein C) Fibrous protein
B) Functional protein D) soluble protein

23. **Actin and myosin are the basic proteins inyolved in contractile machinery of our body to which type of proteins do they belong?**
A) Globular proteins C) Fibrous Proteins
B) Intermediate protein D) Integral protein

24. **How many possible double bonds may be present in fatty acids:**
A) Two C) Four
B) Three D) Six

25. **Specific gravity of fats and oils is:**
A) 0.8 C) 0.6
B) 1.8 D) 0.08

26. **An example of a saturated fatty acid is**
A) Palmitic acid C) Oleic acid
B) Linoleic acid D) Erucic acid

27. **Phosphatidic acid lacks**
A) Fatty acids C) Phosphate group
B) Glycerol D) Choline

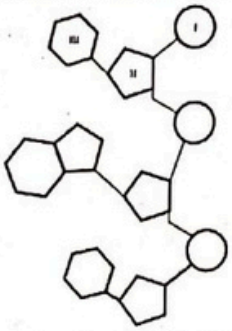
28. **Lecithin consists of**
A) Glycerol, fatty acids, phosphoric acid and choline
B) Glycerol, fatty acids, phosphoric acid and ethanolamine
C) Glycerol, fatty acids, phosphoric acid and inositol
D) Glycerol, fatty acids, phosphoric acid and serine

29. **Which of the following is an unsaturated fatty acid?**
A) Acetic Acid
B) Butyric acid
C) Oleic acid
D) Palmitic acid

30. **Acylglycerols like fats and oils are esters formed by condensation reaction between:**
A) Fatty acids and water
B) Fatty acids and alcohols
C) Fatty acids and glucose
D) Fatty acids and phosphates

31. **Maximum amount of energy is stored by:**
A) Lipids
B) Proteins
C) Nucleic acids
D) Carbohydrates

32. **Which of these labels matches the structure of the partial RNA strand shown?**



A) I. Phosphate; II. ribose; III. nitrogen base
B) I. Phosphate; II. nitrogen base; III. Ribose
C) I. Nitrogen base; II. phosphate; III. ribose
D) I. Ribose; II. nitrogen base; III. Phosphate

33. **It is strongly associated with ribosomal protein where 40 to 50% of it is present:**
A) mRNA
B) rRNA
C) snRNA
D) tRNA

34. **The RNA molecules mostly occur as a:**
A) Duplix
B) Double stranded structure
C) Single stranded structure
D) Genetic material

35. **All three types of _____ are synthesized from _____ in the _____:**
A) RNA, DNA, Nucleus
B) RNA, Nucleus, DNA
C) DNA, RNA, Nucleus
D) Nucleus, RNA, DNA

36. **It comprises about 10 to 20% of the cellular RNA:**
A) mRNA
B) tRNA
C) rRNA
D) snRNA

37. **It is the major form of RNA in the cell:**
A) rRNA
B) tRNA
C) mRNA
D) snRNA

38. **On the surface of _____ the mRNA and tRNA interact to translate the information from genes into a specific protein:**
A) DNA
B) Chromosome
C) Ribosome
D) Nucleosome

39. **The covalent bond formed between two monosaccharides is called?**
A) Glyosidic bond
B) Hydrogen bond
C) Peptide bond
D) Disulphide bond

40. **In an amino acid, in which the R group is hydrogen, the amino acid will be:**
A) Alanine
B) Glycine
C) Leucine
D) Valine

41. **Select the molecular formula of lactose.**
A) $C_{11}H_{22}O_{11}$
B) $C_{12}H_{22}O_{11}$
C) $C_{12}H_{24}O_{12}$
D) $C_{11}H_{24}O_{12}$

42. **Except one, all carbon atoms in a monosaccharide have the following group.**
A) Hydroxyl group
B) Amino group
C) Aldehydic group
D) Aldehydic group and ketonic group

43. **Select the following which is hexoses**
A) Ribose
B) Erythrose
C) Glucoheptose
D) Galactose

44. **Lipids contain double the amount of energy as compared to same amount of carbohydrates because of high proportion of**
A) C – C bonds
B) C – H bonds
C) C – O bonds
D) C – N bonds

45. **Which of the following statement is incorrect for fats containing unsaturated fatty acids?**
A) They are lighter than water
B) They contain double bonds
C) They are usually solid at room temperature
D) Their specific gravity is less than one

46. **Phosphatidic acid is composed of**
A) Glycerol + 2 Fatty acid + Phosphoric acid
B) Glycerol + Fatty acid + Phosphoric acid+ N-base
C) 2 Glycerol + Fatty acid + Phosphoric acid
D) Glycerol + Fatty acid + 2 Phosphoric acid + N-base

47. **Which of the following is cloverleaf like structure?**
A) mRNA
B) DNA
C) tRNA
D) rRNA

48. **In sickle cell hemoglobin the change occurs at _____ position of β chain in protein.**
A) 1st
B) 2nd
C) 3rd
D) 6th

49. **Glucose is**
A) Aldose hexose sugar
B) Furanose pentose sugar
C) Ketose hexose sugar
D) Pyranose Pentose sugar

50. **Oligosaccharides contain:**
A) Two Monosaccharides
B) No Monosaccharides
C) 2-9 Monosaccharides
D) Numerous monosaccharides

51. **Reducing sugars are**
A) Glucose, fructose, galactose, maltose and lactose
B) Glucose, sucrose and cellulose
D) Lactose, starch, glycogen and trehalose
C) Sucrose

52. **If deoxyribose sugar is supplemented with oxygen at second carbon atom, this is formed? Which one of these is formed?**
A) Erythrose
B) Ribulose
C) Heptose
D) Ribose

53. **The sweetest sugar is**
A) Fructose
B) Sucrose
C) Glucose
D) Monellin

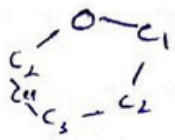
54. **Deoxyribose is**
A) $C_5H_{10}O_5$
B) $C_6H_{12}O_6$
C) $C_5H_{10}O_4$
D) $C_6H_{12}O_5$

55. **Lactose is a disaccharide of**
A) Glucose only
B) Glucose and galactose
C) Glucose and fructose
D) All of the above

56. Maltose is hydrolysed in the presence of maltase to
A) Glucose
B) Fructose
C) Glucose & fructose
D) Glucose & galactose

57. Iodine test is used to detect
A) Fats
B) Typhoid
C) Malaria
D) Carbohydrates

58. How many atoms are there is pyranose ring?
A) 5
B) 6
C) 3
D) 7



59. Which of the following are all disaccharides?
A) Maltose, sucrose, lactose
B) Glycogen, lactose, sucrose
C) Maltose, lactose, glucose
D) All of the above

60. α and β - glucose differ in the orientation of –OH group around
A) C_3
B) C_5
C) C_1
D) C_2

61. A sugar of animal origin is
A) Fructose
B) DHAP
C) Lactose
D) PGA

62. Monosaccharide found in nucleolus is
A) Pentose
B) Erythrose
C) Tetrose
D) Hexose

63. A fat molecule has three fatty acids. A phospholipid molecule has how many fatty acids?
A) 3
B) 1
C) 2
D) 0

64. The most abundant lipid in cell membrane is
A) Phospholipid
B) Cholesterol
C) Steroid
D) Waxes

65. Which one of the following gives maximum energy in metabolic processes?
A) Proteins
B) Fats
C) Nucleic acids
D) Carbohydrates

66. $CH_3(CH_2)_7CH=CH(CH_2)_7COOH$ is formula of
A) Oxalosuccinate
B) Linolenic acid
C) Oleic acid
D) α-ketoglutarate

67. The first amino acid taking part in protein synthesis is
A) Met
B) Arg
C) Val
D) Tryp

68. Which one is an amino acid?

A) $CH_3-CH(NH_2)-C(=O)-OH$

B) $CH_3-CH_2-C(=O)-NH_2$

C) $CH_3-CH_2-C(=O)-O-NH_4$

D) $CH_3-CH(NH_2)-C(=O)-Cl$

69. The peptide linkage is
A) $CONH_2$
B) $-COONH_2$
C) –CO.NH
D) –CH–NH

70. **The following one is smallest.**
A) Maltose C) Cellulose
B) Glycine D) Cellbiose

71. **At branching of molecules of starch, which glycosidic bond occurs?**
A) α–1–4 C) β, 1–4
B) β, 1–6 D) α, 1–6

72. **In amylose glucose units are linked by**
A) α–1–4 linages C) α–16 linag es
B) Both α–1–4 and α–1–6 linkages D) All of the above

73. **Which is an unbranched polymer?**
A) Cellulose C) Starch
B) Glycogen D) All of the above

74. **The monomer units in starch are**
A) Pyranose fructose C) Furanose
B) β-D glucose D) α-D glucose

75. **Chitin forming exoskeleton in arthropods is second most abundant carbohydrate on this earth. It is a**
A) Storage sulphur containing polysaccharide
B) Nitrogen containing structural homopolysaccharide (N-acetyl glucosamine)
C) Mucopolysaccharide
D) Structural oligosaccharide

76. **Which of the following carbohydrates gives a dark blue colour with iodine?**
A) Amylopectin C) Cellulose
B) Starch D) None of these

77. **Which is incorrect regarding glycogen?**
A) Glycogen is analogous to starch C) It is non reducing sugar
B) It is a structural polysaccharide D) It gives red colour with iodine solution

78. **Immunoglobulins (antibodies) of the blood plasma are**
A) Glycoproteins C) Lipoproteins
B) Flavoproteins D) All of these

79. **Most abundant protein on earth is**
A) Keratin C) Rubisco
B) RuBP D) Fibrinogen

80. **The major fibrous protein of connective tissue is**
A) Myosin C) Myoglobin
B) Collagen D) Keratin

81. **The protein of red muscles to store oxygen is**
A) Haemoglobin C) Myoglobin
B) Myosin D) Actin

82. **Formation of proteins is a type_____.**
A) Dehydration synthesis C) Dehydrogenation
B) Hydration synthesis D) Hydrogenation

83. **Natural silk fibre is**
A) Polyester C) Protein
B) Lipid D) Polysaccharide

84. **Keratin and chitin are chemically**
A) Carbohydrates and are functionally similar C) Proteins and functionally similar
B) Carbohydrates but functionally different D) Different but functionally similar.

85. Structural proteins are usually
A) Enzymatic
B) Fibrous
C) Soluble
D) Globular

86. Glycosidic bond is
A) C–O–C
B) >C=O
C) CONH
D) CHO

87. Which one of the following has no free aldehyde or ketone group?
A) Fructose
B) Sucrose
C) Maltose
D) Galactose

88. Relationship between amino acid and protein is similar to one found between
A) Glucose and fructose
B) Nucleosides and nucleic acid
C) Nucleotides and nucleic acid
D) Purines and pyrimidines

89. A peptide bond is formed between
A) An aldehyde group and an amino group
B) An aldehyde group and an ester group
C) An aldehyde group and a carboxyl group
D) A carboxyl group and an amino group

90. Which one of the following reactions results in the conversion of amino acids to proteins?
A) Condensation
B) Hydrolysis
C) Deamination
D) Phosphorylation

91. Most polysaccharides are composed of chains of condensed
A) Cellulose units
B) Pentose units
C) Hexose units
D) Pentose units

92. Which one of the following molecules contains amino acids?
A) Ascorbic acid
B) Collagen
C) Cellulose
D) Galactose

93. Which of the following is a complex of globular protein with non-proteinaceous material?
A) Collagen
B) Haemoglobin
C) Egg albumen
D) Fibrinogen

94. In which column are the statements correctly applied to cellulose and sucrose? (✓=correct; ×=incorrect; su=sucrose; ce=cellulose)

Column Property	A su ce	B su ce	C su ce	D su ce
It is a reducing sugar	✓ ✓	✓ ×	× ✓	× ×
It is a polysaccharide	✓ ✓	× ✓	× ✓	× ✓
It has a glycosidic link	✓ ×	✓ ×	× ×	✓ ✓
It produces monosaccharides on complete hydrolysis	× ×	✓ ✓	× ✓	✓ ✓

95. Which molecule contains peptide bonds?
A) ATP
B) DNA
C) Collagen
D) Maltose

96. Which of the following is a polysaccharide present in human muscle?
A) Amylose
B) Myoglobin
C) Collagen
D) Glycogen

97. Which protein has a fibrous structure?
A) Amylase
B) Haemoglobin
C) Collagen
D) Keratin

All proteins maintaining structure are fibrous proteins

98. Which description applies to cellulose?

	Molecule	Glycosidic bond linage	Structure
A.	Linear and branched	α 1.6 and β 1.4	Fibrous
B.	Linear and branched	α 1.6 and β 1.4	Non-fibrous
C.	Linear and unbranched	β 1.4	Fibrous
D.	Linear and unbranched	α 1.6	Non-fibrous

99. Which formula is a carbohydrate?

A) CH_3CHO

B) $C_3H_6O_3$

C) C_2H_5OH

D) $C_{15}H_{31}COOH$

ANSWER KEY

1	B	11	D	21	C	31	A	41	B	51	A	61	C	71	D	81	C	91	C
2	A	12	A	22	C	32	D	42	A	52	D	62	A	72	A	82	A	92	B
3	B	13	C	23	C	33	B	43	D	53	A	63	C	73	A	83	C	93	B
4	D	14	A	24	D	34	C	44	B	54	C	64	A	74	D	84	D	94	D
5	B	15	A	25	A	35	A	45	C	55	B	65	B	75	B	85	B	95	C
6	A	16	D	26	A	36	B	46	A	56	A	66	C	76	B	86	A	96	D
7	B	17	D	27	D	37	A	47	C	57	D	67	A	77	B	87	B	97	D
8	C	18	B	28	A	38	C	48	D	58	B	68	A	78	A	88	C	98	C
9	B	19	A	29	C	39	A	49	A	59	A	69	C	79	C	89	D	99	B
10	C	20	B	30	B	40	B	50	C	60	C	70	B	80	B	90	A		

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PAST PAPER MCQs 2008 – 2020

Introduction To Biological Molecules

Q.1 Which bond is the potential source of chemical energy for cellular activities? (2008)

A) C-N.
B) C-O.
C) C-H.
D) H-O.

Water

Q.2 Name the human tissues that contain about 85% water: (2008)

A) Nerve cells
B) Bone cells
C) Brain cells
D) None of these

Q.3 When an electron pair is shared between two atoms: (2010)

A) Two covalent bonds are formed
B) Hydrogen bond is formed
C) Single covalent bond is formed
D) Ionic bond is formed

Q.4 If water has high latent heat of vaporization, how this property of water could be helpful to plants and animals? (2019)

A) With the release of large amount of water vapours, a small amount of heat loss can take place.
B) No cooling effect with the release of even large amount of water vapours
C) It will keep their temperature very high
D) With the release of small amount of water vapours, a great amount of heat loss can take place

Q.5 Water act as universal solvent because of (2020)

A) Heat of vaporization
B) Hydrogen bonding
C) High polarity
D) Cohesion and adhesion

Q.6 Which property of water helps to maintain the integrity membrane? (2020)

A) Specific heat capacity
B) Hydrogen Bonding
C) Cohesion and adhesion
D) Hydrophobic exclusion

Carbohydrates

Q.7 The basic element of all organic compounds is: (UHS-MODEL PAPER-2011)

A) Oxygen.
B) Nitrogen.
C) Hydrogen.
D) Carbon.

Q.8 Carbohydrates are organic molecules and contain three elements: (2012)

A) Carbon, water and oxygen
B) Carbon, sulphur and hydrogen
C) carbon, calcium and hydrogen
D) carbon, hydrogen and oxygen

Q.9 The compounds which on hydrolysis yield polyhydroxy aldehyde or ketone sub-units are: (2016)

A) Lipids
B) Proteins
C) Polynucleotides
D) Carbohydrates

Monosaccharides

Q.10 Which one are intermediates in respiration and photosynthesis both? (2012)

A) Ribose and heptolose
B) Glyceraldehyde and dihydroxyacetone
C) Glucose and galactose
D) Fructose and ribulose

Q.11 Which of the following is a keto sugar? OR The simplest monosaccharide containing keto group is: (2013 & 2014)

A) Glyceraldehyde
B) Ribose
C) Dihydroxy acetone
D) Glucose

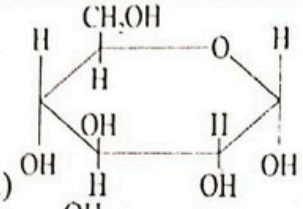
Q.12 The most common respiratory substrate as a source of energy is: (2014)

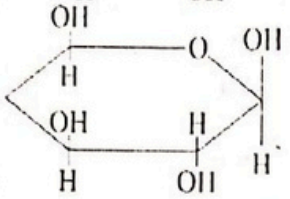
A) Glucose
B) Sucrose
C) Fructose
D) Insulin

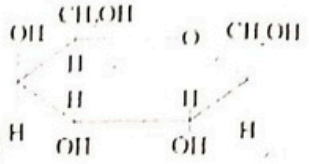
Q.13 Monosaccharides are major components of: (2015)

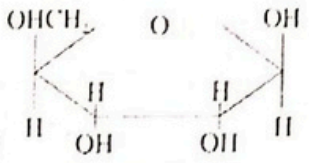
A) DNA, ATP, Ribulose bisphosphate and cysteine
B) DNA, NAD and Insulin
C) DNA, NADP, ATP and ribulose bisphosphate
D) DNA, RNA and myosin

Q.14 Which one of the following is the formula structure of α D-glucose? (2016)

A) 

B) 

C) 

D) 

Q.15 _____ are the specific structures related to monosaccharides: (2017)

A) Glycosidic bond
B) Keto group
C) Maltose
D) Fructose

Q.16 What is general formula of Monosaccharides: (2017-Retake & 2020)

A) $C_X(H_2O)_Y$ /$C_2(H_2O)n$
B) $(CH_2O)n$ /$C(H_2O)n$
C) $Cn\ (H_2O)\ n$
D) $Cn\ (H_2O)\ n\text{-}_1$ /$C^n(H_2O)n$

Oligosaccharid

Q.17 The bond formed between glucose and fructose to form sucrose is: (2011)

A) 1,4 glycosidic linkage
B) 1,2 glycosidic linkage
C) 1,6 glycosidic linkage
D) 1,3 glycosidic linkage

Q.18 Glycosidic bond is formed by: (2018)

A) Removal of water
B) Addition of oxygen
C) Removal of oxygen
D) Addition of water

Q.19 The covalent bond formed between two monosaccharides is called OR The covalent bond or bridge between two monosaccharids to form a disaccharide is called a: (2011 & 2019)

A) Carboxyl bond/ peptide bond
B) Hydroxyl bond/ Disulphide bond
C) Hydrogen bond
D) Glycosidic bond

Q.20 Which is an example of a Disaccharide: (2019)

A) Lactose
B) Glycogen
C) Starch
D) Fructose

Polysaccharides

Q.21 Which of the following gives blue color with iodine? (2008)

A) Starch
B) Cellulose
C) Glycogen
D) All of these

Q.22 Which of the following components is less resistant to decay? (2009)

A) Lignin
B) Starch
C) Chitin
D) Cellulose

Q.23 Which of the following component is found in the cell wall of fungi? (2012)

A) Cellulose
B) Chitin
C) Proteins
D) Glycerol

Q.24 _____ **is the most abundant carbohydrate in nature: (UHS-MODEL PAPER-2011 & 2013)**

A) Cellulose
B) Glycogen/waxes
C) Fructose/glycerol
D) Starch

Q.25 _____ **are the major sites for the storage of glycogen in animal's body: (2017)**

A) Muscles and liver
B) Around thighs and belly
C) Around belly and hips
D) Liver and kidneys

Q.26 Which of the following is high molecular weight and sparingly soluble in water: (2017-Retake)

A) Monosaccharide
B) Disaccharides
C) Oligosaccharides
D) Polysaccharides

Q.27 Starch is present in tuber, fruits and grains but absent in animal cells instead animals have a substance stored in liver and muscles known as: (2019)

A) Glucose
B) Glycogen
C) Galactose
D) Glucagon

Lipids

Acylglycerol

Q.28 Fatty acids are organic compounds containing hydrogen, oxygen and one of the following group: (2011)

A) Carboxylic
B) Amino
C) Acyl
D) Sucrose

Q.29 Which of the following is Unsaturated "Fatty Acid"? (2012, 2015, 2017 Retake 2018 & 2020)

A) Butyric acid
B) Stearic acid
C) Oleic acid
D) Palmitic acid

Q.30 Acylglycerols like fats and oils are esters formed by condensation reaction between (2013)

A) Fatty acids and water
B) Fatty acids and glucose
C) Fatty acids and alcohol
D) Fatty acids and phosphates

Q.31 If in lipid there is a higher proportion of unsaturated fatty acids then it will be: (2017)

A) Oil
B) Waxes
C) Phenols
D) Fat

Q.32 Sara is a chemistry student who is carrying out an experiment between an alcohol and acetic acid in the laboratory. The product formed at the end of the experiment will be: (2019)

A) Glucose and oxygen
B) Glycogen and water molecule
C) An ester and water molecule
D) Glycerol and Sulfuric acid

Q.33 Lipids contain double amount of energy as compared to the same amount of carbohydrates due to the presence of: OR (2019)
Lipids store double amount of energy as compared to carbohydrates because of (2020)

A) Lower proportion of C–H bonds
B) Higher proportion of C–H bonds
C) Higher proportion of C–O bonds
D) Higher proportion of oxygen

Waxes

Q.34 Waterproof surface like cuticle of leaf and protective covering of an insect's body are: (2014)

A) Phospholipids
B) Waxes
C) Terpenoids
D) Acylglycerols

Q.35 Waxes are formed by combination of fatty acids with: (2016)
A) Alcohol
B) Glycerol
C) Serine
D) Cysteine

Phospholipids

NO QUESTION ASKED YET:

Terpenoids

Q.36 Terpenoids are important group of compounds that are made up of simple repeatingunits: (UHS-MODEL PAPER-2011)
A) Acylglycerols.
B) Isoprenoids.
C) Phospholipids.
D) Ketones.

Q.37 Which lipid is totally hydrophobic or insoluble: (2018)
A) Terpenoids
B) Phospholipids
C) Waxes
d) Triglycerides

Proteins

AMINO ACIDS & PEPTIDE BOND FORMATION

Q.38 In an amino acid in which R-group is hydrogen, the amino acid will be: (2011 & 2013)
A) Alanine
B) Glycine
C) Leucine
D) Valine

Q.39 The number of amino acids that have been found to occur in cells and tissues are: (UHS-MODEL PAPER-2011 & 2017)
A) 170
B) 20
C) 25
D) 45

Q.40 Which of the following is a peptide bond? (2012)
A) – C – N
C) – C – P
B) – C – O
D) – C – S

Q.41 Most proteins are made up of _____type of amino acids: (2017 & 2019)
A) 20 type of amino acids
B) 170 type of amino acids
C) 25 type of amino acids
D) 200 type of amino acids

Q.42 Backbone of amino acid is: (2017-Retake)
A) C-C-N
B) –COOH group
C) $-NH_2$ Group
D) –H group

Q.43 In glycine R is _____. (2019)
A) Fatty acid
B) Ethane
C) Hydrogen
D) Methane

Structures of Proteins

Q.44 Haemoglobin exhibits: (2009)
A) Secondary Structure
B) Primary Structure
C) Quaternary Structure
D) Tertiary Structure

Q.45 Secondary structure of protein is found in: (2016)
A) Trypsin
B) Keratin
C) Insulin
D) Glucagon

Q.46 Sequence of amino acids is important in: (2017-Retake)
A) Primary structure
B) Secondary structure
C) Tertiary structure
D) Quaternary structure

Q.47 Bonds present in alpha helix are: (2017-Retake & 2018)
OR
Which of the following holds the alpha-helix of protein in its place?
A) Hydrogen bonds
B) Disulphide linkage
C) Ionic bonds / R-group
D) Peptide bonds/ amino group

Q.48 The number and sequence of amino acids along a polypeptide chain: (2018)
A) Secondary
B) Quaternary
C) Primary
D) Tertiary

Classification

Q.49 Antibodies are actually: (2009)
A) Globular proteins
B) Glycoproteins
C) Fibrous proteins
D) Glycolipids

Q.50 Chemically insulin and glucagon are: (2013)
A) Carbohydrates
B) Proteins
C) Lipids
D) Nucleic acids

Q.51 Myosin is a _____ type of protein: (2015)
A) Intermediate
B) Simple
C) Globular
D) Fibrous

Q.52 The structure of a fibrous protein comprises of polypeptide chains in the form of: (2019)
A) Cluster
B) Flat uncoiled chains
C) Spherical or curled up ball
D) Long strands or fibrils

Nucleic Acid

Composition And Structure Of DNA

Q.53 The two stands in DNA are coiled _____ to each other: (2008)
A) Parallel
B) Antiparallel
C) Both A & B
D) None of these

Q.54 The reaction between the phosphate group of one nucleotide and hydroxyl group of another is a _____ synthesis in DNA molecule. (2009)
A) Dehydration
B) Rehydration
C) Oxidation
D) Reduction

Q.55 The first microbe to have the genome completely sequenced and was published on July 28th, 1995 was (2010)
A) Hyphomicrobium
B) Haemophilus aquaticus
C) Haemophillus malariae
D) Haemophillus infulenzae

Q.56 The combination of a pentose sugar with a base results in a compound known as: (2011)
A) Nucleotide
B) Nucleoside
C) Nucleic acid
D) Polynucleotide

Q.57 One of the following pyrimidine bases is absent in DNA: (2011)
A) Uracil
B) Thymine
C) Cytosine
D) Adenine

Q.58 Which of following combination of base pair is absent in DNA? (2012)
A) A – T
C) A – U
B) C – G
D) T – A

Q.59 Which of the following is a purine? (2013)
A) Cytosine
B) Thymine
C) Uracil
D) Guanine

Q.60 Number of base pairs in one turn of DNA is: (2015)
A) 10
B) 2
C) 34
D) 54

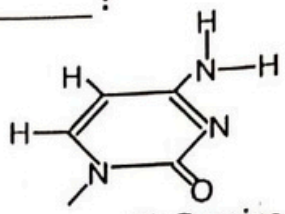
(2016)

Q.61 Phosphodiester bond is:

A) P – O – C – P – O – C
B) C – O – P
C) C – O – P – O – C
D) C – C – O – P

(2017)

Q.62 Following is the structure of _____ :



A) Uracil
B) Thymine
C) Guanine
D) Cytosine

Q.63 When X-rays are passed through crystalline DNA, it shows helix making one complete twist every: OR (2017 & 2018)
A complete turn of the double helix of DNA comprises of:

A) 3.4 nm
B) 3.4 Angstrom
C) 34 nm
D) 34 micrometer

Q.64 All of the following are subunits of DNA EXCEPT: (2017-Retake)

A) Deoxy ribose sugar
B) Phosphate group
C) Nitrogenous base
D) Choline

(2018)

Q.65 Single ringed pyrimidines are:

A) Cytosine, Adenine and Thymine
B) Adenine and Guanine
C) Uracil, Cytosine and thymine
D) Cytosine, Guanine and Uracil

Q.66 The nitrogen containing bases in nucleotide are of two types; purines and pyrimidines; the purine bases are: (2019)

A) Guanine and Cytosine
B) Adenine, Guanine and Cytosine
C) Adenine and Guanine
D) Adenine and Thymine

Q.67 Which one is an example of a Nucleotide? (2019)

A) Adenosine
B) ATP
C) Guanine
D) NAD

Q.68 : NAD is an example of (2020)

A) Mononucleotide
B) Dinculeotide
C) Tri nucleotide
D) Tetranculeotide

TYPES OF RNA

Q.69 The major RNA in the cell is ribosomal RNA. It makes up: (UHS-MODEL PAPER-2011)

A) 80% of total RNAs.
B) 58% of total RNAs.
C) 90% of total RNAs.
D) 40% of total RNAs.

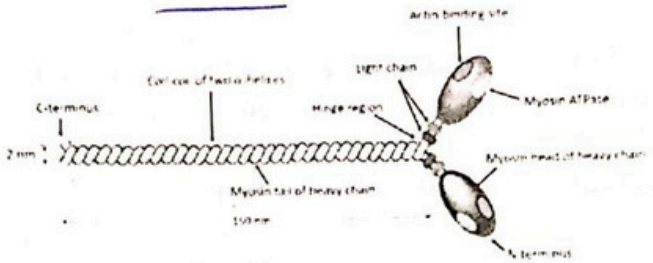
CONJUGATED MOLECULES

Discussion

Q.38 Phospholipids and terpenoids i.e. cholesterol are amphipathic molecules while waxes are totally hydrophobic in nature as it is present as protective water shielding quill, cuticle in fruits and sebum in mammals.

Q.50 Antibodies are both globular and glycoproteins as well, here answer is marked according to the UHS-2009 answer key.

Q.52 Myosin contains both fibrous and globular proteins hence intermediate in nature but PTB and FTBI considered its Fibrous as it is its major structural component.



No question is asked yet

ANSWER KEY

1.	C	11.	C	21.	A	31.	A	41.	A	51.	D	61.	C
2.	C	12.	A	22.	B	32.	C	42.	A	52.	D	62.	D
3.	C	13.	C	23.	B	33.	B	43.	C	53.	B	63.	A
4.	D	14.	A	24.	A	34.	B	44.	C	54.	A	64.	D
5.	C	15.	B	25.	A	35.	A	45.	B	55.	D	65.	C
6.	D	16.	C	26.	D	36.	B	46.	A	56.	B	66.	C
7.	D	17.	B	27.	B	37.	C	47.	A	57.	A	67.	B
8.	D	18.	A	28.	A	38.	B	48.	C	58.	C	68.	B
9.	D	19.	D	29.	C	39.	A	49.	B	59.	D	69.	A
10.	B	20.	A	30.	C	40.	A	50.	B	60.	A		

PAST PAPER MCQs – 2021

Introduction to biological molecules

Q.1 Which of the following is a trace element?
A. Hydrogen
B. Copper
C. Oxygen
D. Carbon

Q.2 In catabolic reaction _____ free the _____.
A. Fatty acids, polysaccharides
B. Proteins, amino acids
C. Lipids, glucose
D. None of these

Q.3 Which of the following is a chemical link between catabolism and anabolism?
A. AMP
B. ADP
C. ATP
D. All of these

Q.4 Which one is the basic element found in all organic compounds?
A. Oxygen
B. Carbon
C. Hydrogen
D. All of these

Q.5 Interconversion of carbohydrates, proteins and lipids in living cells are an example of:
A. Coordinated catabolic activities
B. Coordinated anabolic activities
C. Both A and B
D. None of these

Q.6 How are high energy phosphate bonds broken down in ATP?
A. Anabolism
B. Catabolism
C. Hydrolysis
D. All of these

Q.7 The branch of biology which deals with the study of chemical compounds and the chemical processes in the living organisms is called?
A. Chemistry
B. Molecular Biology
C. Biochemistry
D. Both a and b

Q.8 Reactions in which simple substances are combined to form complex substances are called?
A. Metabolic reactions
B. Catabolic reactions
C. Anabolic reactions
D. Both B and C

Water

Q.9 Specific heat of vaporization of water is:
A. 774 Kcal/kg
B. 874 Kcal/kg
C. 574 Kcal/kg
D. 674 Kcal/kg

Q.10 What percentage of water is found in brain cells?
A. 50
B. 80
C. 85
D. 90

Q.11 The attraction between water molecules and cell wall of xylem is termed as:
A. Cohesion
B. Tension
C. Adhesion
D. Imbibition

Q.12 In living organisms, the lubricant which provides protection against damage resulting from friction is?
A. Water
B. Carbohydrates
C. Lipids
D. Proteins

Q.13 The number of calories required to raise the temperature of lg of water from 15 to 16 °C is called?
A. Specific Heat of Vaporization
B. Specific heat capacity
C. Caloric heat
D. Both a and b

Q.14 Liposomes are:
A. Drug carriers
B. Water in middle
C. Sac of phospholipids
D. ALL A, B, C

Carbohydrates

Q.15 Glycogen is an example of:
A. Phospholipid
B. Polysaccharides
C. Carbohydrates
D. Both B and C

Q.16 What percentage of glucose is normally found in human blood?
A. 0.008
B. 0.0008
C. 0.018
D. 0.08

Q.17 The covalent bond between two monosaccharide subunits is called?
A. Phosphodiester bond
B. Peptide bond
C. Ionic bond
D. Glycosidic bond

Q.18 Which of following cannot be hydrolyzed?
A. Polysaccharides
B. Monosaccharides
C. Oligosaccharides
D. Sucrose

Q.19 Animal starch is called:
A. Cellulose
B. Agar
C. Glycogen
D. Chitin

Q.20 It is not a monosaccharide:
A. Fructose
B. Glucose
C. Sucrose
D. All are monosaccharides

Q.21 Sucrose is present in:
A. Sugar cane
B. Milk
C. Almonds
D. None

Q.22 _____ is valuable for diabetic control.
A. Green vegetable
B. Grapes
C. Rice
D. All of these

Q.23 Glycogen is most abundantly present in:
A. Liver
B. Muscles
C. Kidneys
D. Both A and B

Q.24 Which of the following is soluble in hot water?
A. Starch
B. Glycogen
C. Amylose
D. Amylopectin

Q.25 Glucose is also called as:
A. Dextrose
B. Lymph sugar
C. Grape sugar
D. Both A and C

Q.26 Glycosidic bond is present between:
A. Monosaccharides
B. Carbon atoms
C. Amino acids
D. Fatty acids

Q.27 Which of the following is a trisaccharide?
A. Mannose
B. Galactose
C. Maltose
D. Raffinose

Q.28 Glycogen on hydrolysis gives:
A. Glucose
B. Galactose
C. Fructose
D. Ribose

Q.29 Cellulose on hydrolysis yields:
A. α D-Glucose
B. α L-Glucose
C. β D-Glucose
D. β L-Glucose

Q.30 Carbohydrate catabolism is concerned with the fate of:
A. ATP
B. Amino acid
C. Glucose
D. All of these

CamScanner

Q.31 **A complex substance which on hydrolysis yields polyhydroxy aldehyde or ketone subunits is called?**
A. Lipid
B. Carbohydrate
C. Protein
D. All of these

Q.32 **Which one gives blue color?**
A. Starch
B. Glycogen
C. Cellulose
D. None of these

Q.33 **To synthesis l0g of glucose, how much energy is essentially required?**
A. 727 Kcal
B. 712 Kcal
C. 717 Kcal
D. 719 Kcal

Q.34 **Glycogen is present in all body except**
A. Brain
B. Heart
C. Blood
D. Tissues

Q.35 **Alpha 1-4 glycosidic linkage is present in:**
A. Maltose
B. Sucrose
C. Cellulose
D. Cellobiose

Q.36 **The 5 carbon sugar present in the heart muscle is:**
A. Lyxose
B. Ribose
C. Xylose
D. Glucose

Q.37 **Which is true regarding open chain structure of glucose?**
A. There are six asymmetric carbons
B. There are five asymmetric carbons
C. There are four asymmetric carbon
D. There are three asymmetric carbon

Q.38 **Rarely occurring monosaccharides observed in some bacteria is?**
A. Tetroses
B. Hexoses
C. Pentoses
D. Trioses

Q.39 **In the molecular formula Cx (H2O) y, the value of x ranges from?**
A. 1000
B. 2000
C. 3 to 7000
D. 3000 and more

Q.40 **How many monosaccharide units do oligosaccharides yield upon hydrolysis?**
A. 2
B.5
C. 10
D. All of these

Q.41 **Which one of the following biomolecules is most abundant in animals?**
A. Starch
B. Cellulose
C. Glycogen
D. All of these

Q.42 **This is non-reducing sugar:**
A. Maltose
B. Sucrose
C. Cellobiose
D. Lactose

Q.43 **What type of atom is carbon atom?**
A. Divalent
B. Monovalent
C. Trivalent
D. Tetravalent

Q.44 **Which bond provides stability to complex carbohydrate molecule?**
A. C—H
B. C—N
C. C—O
D. C—C

Q.45 **Which of the following constitute large organic molecules?**
A. Cellulose
B. Glucose
C. Amino acids
D. All of these

Q.46 **These are crystalline, water soluble, forming pyranose rings**
A. Monosaccharides
B. Polysaccharides
C. Oligosaccharides
D. Disaccharides

Q.47 When the glucose level in blood comes down, glucose is synthesized from _____.
A. Fats
B. Glycogen
C. Amino acids
D. DNA

Q.48 Which are the most physiologically significant disaccharides?
A. Maltose
B. Sucrose
C. Lactose
D. All of these

Q.49 Which of the following is the most complex sugar?
A. Monosaccharides
B. Oligosaccharides
C. Polysaccharides
D. Carbohydrates

Q.50 $(CH_2O)n$ is a general formula of:
A. Monosaccharides
B. Oligosaccharides
C. Polysaccharides
D. Carbohydrates

Q.51 The functional group that best represents ketoses is?
A. CO
B. COOH
C. HCOH
D. HOH

Q.52 Unit of carbohydrate is:
A. Monosaccharides
B. Amino acids
C. Fatty acids
D. All

Q.53 Glycogen is present in all body except:
A. Brain
B. Tissues
C. Heart
D. Blood

Q.54 The smallest monosaccharide is:
A. Triose
B. Pentose
C. Tetrose
D. None of these

Q.55 Ribose is a monosaccharide constituent of many_____.
A. Enzymes
B. Coenzymes
C. Vitamins
D. Antibiotic

Proteins

Q.56 This amino acid not found in proteins is
A. Beta alanine
B. Glutamine
C. Tyrosine
D. Histidine

Q.57 The high content of which amino acid confers resistance, stability and insolubility to hairs, nails and skin:
A. Glycine
B. Alanine
C. Methionine
D. Cysteine

Q.58 Which structure of protein gives information about the folding of a protein?
A. Primary structure
B. Tertiary structure
C. Secondary structure
D. Quaternary structure

Q.59 The protein contains bonds:
A. Inorganic bonds
B. Peptide bonds
C. Glycosidic bonds
D. Covalent bonds

Q.60 Protein constitutes of what percentage of the total dry weight found in cells?
A. 50
B. 55
C. 40
D. 65

Q.61 Which structural organization is most common in globular proteins?
A. Primary structure
B. Secondary structure
C. Tertiary structure
D. Quaternary structure

CamScanner

Q.62 An enzyme containing 2 chains of polypeptide has:
A. Primary structure
B. Primary and secondary structure
C. Primary, secondary, tertiary and quaternary structure
D. It has all structures

Q.63 Word Protein is derived from:
A. Latin
B. Greek
C. Roman
D. English

Q.64 Keratinized epithelium is present in:
A. Hair
B. Skin
C. Bone
D. Muscle

Q.65 Which of the molecules is formed by peptide bond?
A. Disaccharide
B. Ester compound
C. Dinucleotide
D. Glycylalanine

Q.66 Which of the following is not an amino acid?
A. Histidine
B. Lactic acid
C. Glutamic acid
D. Glycine

Q.67 What are the distinguishing features of fibrous proteins?
A. Elastic
B. Non-crystalline
C. Disorganized
D. Both A and B

Q.68 Avidin is a protein that:
A. Binds egg white with biotin
B. Binds egg white with egg albumin
C. Both A and B
D. This protein do not belong to egg white

Q.69 The molecular basis of sickle cell anemia was found by:
A. F. Sanger
B. Beadle
C. Tatum
D. Ingram

Q.70 What are the main distinguishing features of globular proteins?
A. Crystalline
B. Elastic
C. Functional
D. Both A and C

Q.71 Antibodies play important role against microorganisms and other pathogens to which type of proteins do they belong?
A. Globular
B. Functional
C. Fibrous
D. Both A and B

Q.72 Proteins are the polymers of?
A. Amino acids
B. Fatty acids
C. Nucleotides
D. None of these

Q.73 What type of protein is Fibrin?
A. Functional
B. Structural
C. Enzymatic
D. All of these

Q.74 The total number of amino acids that have been found in tissues and cells are?
A. 250
B. 200
C. 20
D. 170

Q.75 Number and sequence of amino acid is explanation of
A. Tertiary structure
B. Quaternary structure
C. Secondary structure
D. Primary structures

Q.76 An insulin molecule is made up of how many polypeptide chains?
A. 1
B. 2
C. 3
D. 4

Q.77 It is protein in nature:
A. Fats /cholesterol
B. ATP
C. Glycogen
D. Ligase

Q.78 In glycine, R group of amino acids is replaced by?
A. COOH
B. CH2
C. CH2
D. None of these

Q.79 What type of bonding in proteins maintains the integrity of the helical secondary structure?
A. Hydrogen bonds
B. Ionic bonds
C. Disulfide linkages
D. Both A and B

Q.80 How many bond/s are in a dipeptide?
A. 1
B. 3
C. 2
D. 4

Q.81 Vegetative source of protein:
A. Egg
B. Soyabean
C. Pulses
D. Both B and C

Q.82 Which structure of protein gives information about number and sequence of amino acids?
A. Primary structure
B. Secondary structure
C. Tertiary structure
D. Quaternary structure

Q.83 Globular structure of protein is due to:
A. Primary structure
B. Secondary structure
C. Tertiary structure
D. Quaternary structure

Q.84 Most abundant protein in blood:
A. Collagen
B. Hemoglobin
C. Actin
D. Rubisco

Q.85 Abundant protein in human body:
A. Rubisco
B. Collagen
C. Cellulose
D. Albumin

Q.86 Coagulated protein is:
A. Insoluble
B. Non folded
C. Nonfunctional
D. All of above

Q.87 How many types of amino acids form proteins in human body?
A. 25
B. 70
C. 20
D. 400

Q.88 Proteins are polymers of:
A. Amino acids
B. Fatty acids
C. Nucleotides
D. None of these

Q.89 Number of essential amino acids is?
A. 10
B. 20
C. 9
D. 110

Q.90 Which of the following is important secondary structure in proteins?
A. α-helix
B. β-pleated sheet
C. Folded globule
D. Both A and B

Q.91 Enzymes that are integral part of ribosomes are involved in the synthesis of which of the following molecules?
A. Lipids
B. Protein
C. Carbohydrates
D. All of these

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Lipids

Q.92 A fatty acid is composed of _____.
A. Acid group at one end
B. Acid groups at both ends
C. Amino group at one end
D. Amino group at both ends

Q.93 A compound produced as a result of a chemical reaction of an alcohol with an acid in which water molecule is released is called?
A. Monosaccharide
B. Fatty acid
C. Nucleic acid
D. Neutral lipid

Q.94 Serine is a component of:
A. Lipid
B. Haemoglobin
C. Phospholipid
D. Waxes

Q.95 Choline is component of:
A. Phospholipids
B. Phosphatidic acid
C. Terpenoids
D. Waxes

Q.96 Sterols are:
A. Lipid
B. Protein
C. Carbohydrates
D. All of these

Q.97 Steroid are naturally:
A. Lipoproteins
B. Proteins
C. Lipids
D. A and B

Q.98 These are properties of lipids:
A. Insoluble in water and soluble in fat solvent.
B. High energy content
C. Structural component of cell membrane
D. All of these

Q.99 Fatty acids containing 18 C atoms and a single double bond are?
A. Saturated
B. Unsaturated
C. Oleic acid
D. Palmitic acid

Q.100 Which of the following is a phospholipid?
A. Sterol
B. Cholesterol
C. Lecithin
D. Steroid

Q.101 Lipids show solubility in which of the following solvents?
A. Water
B. Ether
C. Inorganic solvents
D. All solvents

Q.102 Lipids have great functional significance in the human body. What are the main functions of the lipids?
A. Energy source
B. Structure of membrane
C. Insolation
D. All of these

Q.103 Lecithin contains _____.
A. Ethanolamine
B. Choline
C. Serine
D. Betaine

Q.104 Hydrophilic substances are _____ and hydrophobic substances are _____.
A. Water loving, Water fearing
B. Polar, Non-polar
C. Soluble in water. Soluble in lipid
D. All are correct

Q.105 A triglyceride is:
A. Protein
B. Nucleic acid
C. A simple sugar
D. Lipid

Q.106 Nitrogenous bases such as choline and serine are significant part of which of the following?
A. Sphingolipids
B. Phospholipids
C. Phosphodiester
D. none of these

Q.107 Saponification number describes_____.
A. Unsaturation in fat
B. Average molecular weight of fatty acid
C. Acetyl number
D. Acid number

Q.108 Eighteen carbon containing saturated fatty acid
A. Oleic acid
B. Stearic acid
C. Palmitic acid
D. Linoleic acid

Q.109 Essential fatty acids show all the characters except_____.
A. Lipotropism
B. Blood clotting factors
C. Used for energy production
D. None of these

Q.110 Fatty acid contains:
A. Alcohol and esters
B. Carboxylic and alkyl groups
C. Carboxylic group and isoprenoid
D. Phospholipids and alkyl groups

Q.111 In water, hydrophobic interactions of phospholipids are:
A. In heads
B. In tails
C. Both A and B
D. None

Q.112 Liposomes are:
A. Vesicles
B. Have water
C. Drug carrier
D. All of the above

Q.113 Glycerol is component of:
A. Fatty acids
B. Acylglycerols
C. Phospholipids
D. Both B and C

Q.114 Oils are:
A. Saturated fatty acids
B. Unsaturated fatty acids
C. Glycerides with unsaturated fatty acids
D. Glycerides with saturated fatty acids

RNA

Q.115 In contrast to eukaryotic mRNA, prokaryotic mRNA:
A. Can be polycistronic
B. Is synthesized with introns
C. Can only be monocistronic
D. Has a poly A tail

Q.116 A sample of RNA is sequenced and found to contain 22% adenine. Which of the following conclusions can also be drawn about the sample?
A. 22% uracil
B. 22% thymine
C. 22% cytosine
D. 22% guanine

Q.117 For a protein molecule of 2000 amino acids, the mRNA will have a length of how many nucleotides?
A. 3000
B. 2000
C. 6000
D. 5000

Q.118 Most abundant intracellular free nucleotide is:
A. UTP
B. FAD
C. NAD
D. ATP

Q.119 RNA does not contain:
A. Adenine
B. Hydroxy methyl cytosine
C. Phosphate
D. Thymine

Conjugated molecules (glycolipids, glycoproteins)

Q.120 Lipoproteins rich in cholesterol are:
A. Chylomicrons
B. VLDL
C. LDL
D. HDL

Q.121 HDL is synthesized in:

A. Adipose tissue
B. Liver
C. Intestine
D. Liver and intestine

Q.122 Which of the following statement is not true for compounds like glycoprotein and glycolipids?

A. They are conjugated molecules of carbohydrates
B. Both have role in the extracellular matrix of animals
C. They are components of biological membranes.
D. Both are produced and secreted by endoplasmic reticulum

Q.123 The basic framework structure of all types of membranes are:

A. Glycolipids
B. Glycoproteins
C. Lipoproteins
D. Nucleoproteins

Q.124 Glycosphingolipid are made up of

A. Sphingolipids
B. Alcohol and fatty acids
C. Carbohydrate and sphingolipids
D. Carbohydrates and fatty acids

Out of syllabus

Q.125 The oldest mineral discovered so far is which of the following, which dates back to 4.4 billion years:

A. Iron
B. Cadmium
C. Diamond
D. Zircon

Q.126 Which of the following makes protective coatings around the plant organs?

A. Lipids
B. Waxes
C. Glycerols
D. Glycolipids

Q.127 Which of the following is a water-soluble vitamin?

A. Riboflavin
B. Vitamin c
C. Niacin1
D. All of these

Q.128 In DNA molecules, Adenine pairs with which of the following nucleic acid bases?

A. Guanine
B. Thymine
C. Cytosine
D. Uracil

Q.129 Nontoxic vitamins include which of the following?

A. Vitamin c
B. Vitamin b
C. Both A and B
D. None of the above

Q.130 Reactions in which simple substances are combined to form complex substances are called:

A. Metabolic reactions
B. Catabolic reactions
C. Anabolic reactions
D. None of these

Q.131 Which of the following is water soluble vitamin?

A. A
B. B
C. D
D. K

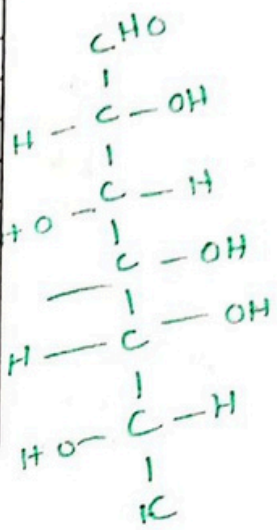
Q.132 The number of water-soluble vitamins is:

A. 3
B. 6
C. 9
D. 12

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ANSWER KEY

1	B	21	A	41	C	61	C	81	D	101	B	121	A
2	B	22	A	42	B	62	C	82	A	102	D	122	D
3	C	23	D	43	D	63	B	83	C	103	B	123	C
4	D	24	C	44	C	64	B	84	B	104	D	124	C
5	C	25	D	45	A	65	D	85	B	105	D	125	D
6	C	26	A	46	A	66	B	86	D	106	B	126	B
7	C	27	D	47	B	67	D	87	C	107	D	127	D
8	C	28	A	48	D	68	A	88	A	108	B	128	B
9	C	29	C	49	C	69	D	89	A	109	B	129	C
10	C	30	C	50	A	70	D	90	D	110	B	130	C
11	C	31	B	51	A	71	D	91	B	111	B	131	B
12	A	32	A	52	A	72	A	92	A	112	D	132	D
13	B	33	C	53	D	73	B	93	D	113	D		
14	D	34	C	54	A	74	D	94	C	114	B		
15	B	35	A	55	B	75	D	95	A	115	A		
16	D	36	A	56	A	76	B	96	A	116	A		
17	D	37	C	57	D	77	D	97	C	117	C		
18	B	38	A	58	B	78	D	98	D	118	D		
19	C	39	C	59	B	79	A	99	C	119	D		
20	C	40	D	60	A	80	A	100	C	120	C		



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UNIT 4

PRACTICE EXERCISE

CELL STRUCTURES AND FUNCTION

1. **Most distinctive feature of prokaryotic cell is:**
   A) Flagella
   B) Lack of Ribosomes
   C) Kind of Cell wall
   D) Cytoplasm

2. **Proteins are converted into glycoproteins by:**
   A) Nucleolus
   B) Mitochondria
   C) Golgi apparatus
   D) Endoplasmic Reticulum

3. **They are organelles of symbiotic origin:**
   A) Nucleus & mitochondria
   B) Golgi & E.R
   C) Chloroplast & mitochondria
   D) Cilia

4. **Nuclear outer membrane is continuous with**
   A) E.R.
   B) Golgi bodies
   C) Centrioles
   D) Lysosome

5. **The exact replica of chromosome is:**
   A) Chromatid
   B) Chromatin
   C) Centromere
   D) Plasmid

6. **Nucleus is stained with**
   A) Basic dyes
   B) Neutral dyes
   C) Acidic dyes
   D) Gram stain

7. **In muscle cells which of these conducts impulses?**
   A) Nucleus
   B) Cytoplasm
   C) Golgi bodies
   D) Smooth ER

8. **These are stacks of flattened membrane bounded sacs:**
   A) Lysosome
   B) Endoplasmic reticulum
   C) Cisternae
   D) Nucleus

9. **In pancreas, granules containing enzymes are secreted by?**
   A) Golgi bodies
   B) Endoplasmic Reticulum
   C) Ribosome
   D) Lysosome

10. **It controls life and activities of cell:**
    A) Nucleus
    B) Mitochondria
    C) Chloroplast
    D) ER

11. **The functional unit of golgi apparatus is?**
    A) Thylakoids
    B) Oxysomes
    C) Cristae
    D) Cisterna

12. **How many of the following are membrane bounded organelles? Mitochondria, centrioles, nucleolus, nucleus, chloroplast, ribosomes.**
    A) 6
    B) 4
    C) 3
    D) 5

13. **The intake of liquid material by cell membrane by forming vacuole is:**
    A) Phagocytosis
    B) Endocytosis
    C) Pinocytosis
    D) Exocytosis

14. **Which one of the following is the site of oxidative phosphorylation in mitochondria**
    A) Cristae
    B) Matrix
    C) Outer membrane
    D) Ribosomes

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15. **Organelle involved in the synthesis of ATP is:**
A) Ribosomes
B) Mitochondria
C) Nucleus
D) Centriole

16. **Peptidoglycan or murein is special or distinctive feature of cell wall in:**
A) Algae
B) Fungi
C) Bacteria
D) Plants

17. **In mitochondria small knob like structure called F_1 particles are found in:**
A) Outer membrane
B) Outer compartment
C) Inner membrane
D) Inner compartment

18. **Which component of the cell is concerned with cell secretions?**
A) Plasma membrane
B) Golgi complex
C) Cytoskeleton
D) Mitochondria

19. **The model of plasma membrane suggests that proteins are embedded in lipid bilayer:**
A) Unit membrane
B) Fluid mosaic
C) Permeable
D) Ultracentrifuge

20. **The function of nucleolus is to make:**
A) rDNA
B) Ribosomes
C) RNA
D) Chromosomes

21. **Lipid metabolism is the function of:**
A) Mitochondria
B) Sarcoplasmic reticulum
C) RER
D) SER

22. **The enzymes of lysosomes are synthesized on:**
A) RER
B) SER
C) Chloroplast
D) Golgi apparatus

23. **Plasma membrane is chemically composed of:**
A) Phospholipids only
B) Lipids and proteins
C) Lipids and carbohydrates
D) Glycoproteins

24. **Endoplasmic reticulum consists a system of flattened membrane bounded sacs which are named as:**
A) Cristae
B) Lamellae
C) Cisternae
D) Tubes

25. **When a glycoprotein is being synthesized for secretion from a cell, which route is it most likely to take?**
A) Golgi apparatus → rough endoplasmic reticulum → smooth endoplasmic reticulum
B) Rough endoplasmic reticulum → Golgi apparatus → smooth endoplasmic reticulum
C) Rough endoplasmic reticulum → smooth endoplasmic reticulum → Golgi apparatus
D) Smooth endoplasmic reticulum → rough endoplasmic reticulum → Golgi apparatus

26. **Granular endoplasmic reticulum is mainly concerned with**
A) Proteolysis
B) Peptide bond formation
C) Glycosidic bond formation
D) Fatty acid and cholesterol synthesis

27. **Golgi apparatus is absent in**
A) Liver cells
B) Higher plants
C) Blue green algae
D) Yeast

28. **Pinocytosis and phagocytosis are accomplished by the**
A) Nucleus
B) Mitochondria
C) Cell membrane
D) Endoplasmic reticulum

29. **Which one of the following eukaryotic cell structures does not contain DNA?**
A) A nucleus
B) A mitochondrion
C) Endoplasmic reticulum
D) A chloroplast

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30. **Phragmoplasts are formed by**
A) ER
B) Mitochondria
C) Golgi bodies
D) Nucleus

31. **Size of ribosomes in organelles of endosymbiotic origin:**
A) 50S
B) 60S
C) 70S
D) 80S

32. **Which structure is present in a plant cell but not in an animal cell?**
A) Cell membrane
B) Cell wall
C) Cytoplasm
D) Nucleus

33. **Which viewed through an electron microscope, which structure is surrounded by a double membrane?**
A) Endoplasmic reticulum
B) Golgi body
C) Mitochondrion
D) Ribosome

34. **Which of the following have both cytoplasm and cell walls?**
A) Muscle cells
B) Red blood cells
C) Root hair cells
D) xylem vessels

35. **Which structures are found in animal cells and in plant cells?**
A) Cell membrane and chloroplasts
B) Cell membrane and nucleus
C) Cell wall and chloroplasts
D) Cell wall and nucleus

36. **Which organelle is not correctly paired with its cellular function?**

	Organelle	Function
A	Endoplasmic reticulum	Stores carbohydrate
B	Golgi body	Releases membrane-bound vesicles
C	Mitochondrion	Releases energy
D	Ribosome	Joins amino acids together

37. **A list of cell components is given:**
1 cell membrane
2 cell wall
3 cytoplasm
4 central vacuole
Which two components occur only in plant cells?
A) 1 and 2
B) 2 and 3
C) 2 and 4
D) 3 and 4

38. **Which one of the following organelles always contains DNA?**
A) Centriole
B) Golgi apparatus
C) Lysosome
D) Mitochondrion

39. **Which one of the following would exocrine cells be expected to contain as a result of their function?**
A) Increased amounts of DNA
B) Increased amounts of rough endoplasmic reticulum
C) Increased numbers of lysosomes
D) Large mitochondria

40. **The nuclei of both plant and animal cells contain one or more dense bodies known as nucleoli. Which one of the following correctly describes the function of nucleoli?**
A) The formation of new DNA molecules
B) The organization of the spindle during nuclear division
C) The replication of mitochondria following nuclear division
D) The formation of ribosomes

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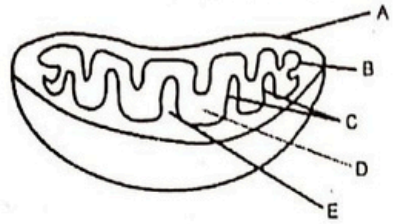
41. **Which of the following cell structures contains the highest concentration of RNA?**
A) Centriole
B) Chromosome
C) Lysosome
D) Nucleolus

42. **From which cell organelle are nucleic acids absent?**
A) Chloroplast
B) Golgi apparatus
C) Mitochondrion
D) Ribosome

43. **Which is the function of nucleoli?**
A) The formation and breakdown of the nuclear membrane
B) The formation of centromeres
C) The formation of ribosomes
D) The organization of the spindle during nuclear division

44. **What is the function of the smooth endoplasmic reticulum?**
A) Aerobic respiration
B) Intracellular digestion
C) Synthesis of steroids
D) Transport of proteins

45. **The diagram shows the components that can be seen with an electron microscope in a mitochondrion.**

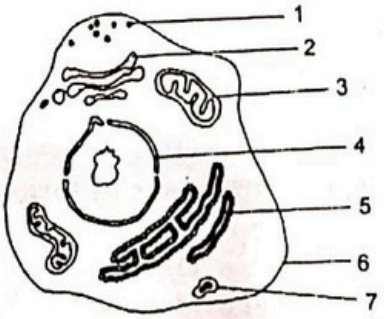


Identify the parts labelled A to E.

	A	B	C	D	E
A	Outer membrane	Inner membrane	Crista	Matrix	Intermembrane space
B	Outer membrane	Inner membrane	Crista	Matrix	Thylakoid space
C	Outer membrane	Inner membrane	Cisternae	Matrix	Intermembrane space
D	Outer membrane	Inner membrane	Crista	Stroma	Intermembrane space

46. **When radioactively-labelled amino acids are taken up by pancreatic acinar (secretory) cells, what is the sequence of structures in which radioactivity will appear?**
first ⟶ *last*
A) Cytoplasm, endoplasmic reticulum, Golgi apparatus
B) Cytoplasm, lysosomes, endoplasmic reticulum,
C) Lysosomes, nucleus, Golgi apparatus
D) Membrane, cytoplasm, nucleus

47. **The diagram shows the ultrastructure of a cell. In which cell component is a new synthesized protein modified by adding carbohydrate?**



A) 5
B) 4
C) 6
D) 2

48. **The key below can be used to separate the following cell organelles: nuclei, chloroplasts, mitochondria, ribosomes and lysosomes.**

(i) Membrane with definite pores V
(ii) Inner membrane with stalked particles attached ..... W
(iii) Inner membrane folded into thylakoids X
(iv) Composed of one unit ..... Y
(v) Composed of one large and one small sub-unit ..... Z

What are V, W, X, Y and Z?

	V	W	X	Y	Z
A	Chloroplasts	Lysosomes	Nucleus	Ribosomes	Mitochondria
B	Chloroplasts	Nucleus	Lysosome	Mitochondria	Ribosomes
C	Mitochondria	Ribosomes	Chloroplasts	Nucleus	Lysosomes
D	Nucleus	Mitochondria	Chloroplasts	Lysosomes	Ribosomes

49. **Steroid hormones are formed by:**

A) ER
B) SER
C) RER
D) RAZ

ANSWER KEY

1	C	11	D	21	D	31	C	41	D
2	C	12	C	22	A	32	B	42	B
3	C	13	C	23	B	33	C	43	C
4	A	14	A	24	C	34	C	44	C
5	A	15	B	25	C	35	B	45	A
6	A	16	C	26	B	36	A	46	A
7	D	17	C	27	C	37	C	47	D
8	C	18	B	28	C	38	D	48	D
9	A	19	B	29	C	39	B	49	B
	A		B		C		D		

(2) 15
50
750 ym

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PAST PAPER MCQS – 2008 – 2020

History & introduction:

Q.1 Robert Hooke was the first person to see cells in: (UHS-MODEL PAPER-2011)
A) Various plants.
B) Animals.
C) Fungi.
D) Cork.

Q.2 The concept "*OMNIS cellula-e-cellula*" means that, new cells are formed from: (UHS-MODEL PAPER-2011)
A) Non-living materials.
B) Dead organic matter.
C) Pre-existing living cells.
D) As the result of chemical reactions.

Q.3 The smallest independent unit of life is known as: (2013)
A) Cell
B) Bacterial colony
C) Chloroplast
D) DNA

Light and Electron Microscope (Magnification and Resolution)

Q.4 The ability to distinguish between two separate points/ objects is: (2018)
A) Fractionation
B) Magnification
C) Centrifugation
D) Resolution

Q.5 If 15 µm size object is observed under light microscope using 5X eyepiece and 10X objective, its magnified image size will be: (2019)
A) 250 µm
B) 50 µm
C) 750 µm
D) 500 µm

Animal & Plant Cell:

Q.6 Plasma membrane is found in the cells of: (UHS-MODEL PAPER 2011)
A) Animals only.
B) Plants only.
C) Both plants and animals.
D) Bacteria only.

Q.7 Plastids are only found in the: (2012)
A) Animals and plants
B) Animals
C) Plants
D) Viruses

Q.8 Out of the given options, choose the one which shows the structures found only in plants: (2016)
A) Vacuole, chloroplast, ribosomes
B) Chloroplast, microtubules, peroxisomes
C) Chloroplast, cell wall, mitochondria
D) Chloroplast, cell wall, vacuole

Q.9 Presence of large central vacuole is the characteristic of: (2016)
A) Prokaryotes
B) Protists
C) Plants
D) Fungi

Q.10 Select the organelle which is only present in animal cells: (2017)
A) Centriole
B) Rough Endoplasmic Reticulum
C) Microtubule
D) Ribosome

Q.11 Which of the following is common organelle in plant and animal: (2017-Retake)
A) Peroxisome
B) Flagella
C) Centrioles
D) Plastids

Plasma membrane: (Fluid Mosaic Model)

Q.12 Plasma membrane is chemically composed of: (2012)
A) Phospholipids only
B) Lipids and proteins
C) Lipids and carbohydrates
D) Glycoproteins

Q.13 The _____ model of plasma membrane suggests that proteins are embedded in lipid bilayer (2013)
A) Unit membrane
B) Permeable
C) Ultracentrifuge
D) Fluid mosaic

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Q.14 **Fluid mosaic model of plasma membrane states that protein molecules float in a fluid _____ bilayer.** **(2015)**

A) Galactose C) Glucose
B) Phospholipids D) Carbohydrate

Q.15 **The basic structure of plasma membrane is provided by:** **(2016)**

A) Proteins C) Phospholipids
B) Cholesterols D) Cytoskeleton

Q.16 **According to the fluid mosaic model of cell membrane, which zone is embedded inside?** **(2020)**

A) Hydrophobic C) Globular
B) Hydrophilic D) Filamentous

Transport of Material across the Cell Membrane

Q.17 **The intake of liquid material across the cell membrane:** **(2014)**

A) Phagocytosis C) Pinocytosis
B) Endocytosis D) Exocytosis

Q.18 **The rapid exchange of materials through carrier proteins across the plasma membrane is called:** **(2016)**

A) Passive Diffusion C) Endocytosis
B) Active Transport D) Facilitated Diffusion

Q.19 **Taking in of solid particle by cell is called:** **(2017-Retake)**

A) Phagocytosis C) Exocytosis
B) Pinocytosis D) Endocytosis

Q.20 **Passive processes for the movement of molecules across cell surface membrane are:** **(2019)**

A) Facilitated diffusion and osmosis C) Diffusion and exocytosis
B) Pinocytosis and facilitated diffusion D) Osmosis and phagocytosis

EUKARYOTIC CELL STRUCTURE ORGANELLES :

Cell Wall:

Q.21 **Which of the following organelles are involved in the synthesis of plant cell wall?** **(2020)**

A) Endoplasmic reticulum C) Lysosomes
B) Golgi complex D) Peroxisomes

Cytoplasm:

Q.22 **The soluble part of cytoplasm is termed as:** **(2007, 2008)**

A) Cisternae C) Endocytosis
B) Cytosol D) Both A & B

Q.23 **The soluble part of the cytoplasm or fluid that remains when all organelles are removed is known as:** **(2013)**

A) Cytosol C) Gelatin material
B) Solution D) Cytoplasm

Endoplasmic Reticulum:

Q.24 **Detoxification of harmful drugs within the cell is done by:** **(2009)**

A) Nucleolus C) Ribosomes
B) Smooth Surface Endoplasmic Reticulum D) Food Vacuoles

Q.25 **The semicircular channels and system of tubes found in cytoplasm are known as:** **(UHS-MODEL PAPER-2011)**

A) Ribosomes. C) Endoplasmic reticulum.
B) Glyoxisomes. D) Vacuoles.

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Q.26 Endoplasmic reticulum contains a system of flattened membrane-bounded sacs which are named as: (2012)

A) Cristae
B) Marks
C) Cisternae
D) Tubules

Q.27 Which one of the following cell structures is involved in the synthesis of lipids/ lipid metabolism? (2012,13,15 & 18)

A) Smooth Endoplasmic reticulum
B) Golgi complex
C) Centriole
D) Mitochondrion

Q.28 The organelle involved in detoxification of drugs and poisons in the liver cells is: (2016)

A) Rough endoplasmic reticulum
B) Smooth endoplasmic reticulum
C) Golgi apparatus
D) Lysosomes

Q.29 Smooth endoplasmic reticulum is responsible for the metabolism of: (2019)

A) Carbohydrates
B) Proteins
C) Nucleic acids
D) Lipids

Q.30 Select the one which is not a function of Smooth Endoplasmic Reticulum (SER)? (2020)

A) Metabolism of lipids
B) Transmission of impulses
C) Transport of materials
D) Processing of glycoproteins

Ribosomes:

Q.31 A group of ribosomes attached to messenger RNA is known as: (2009 & 2017-Retake)

A) Ribosome
B) Lysosome
C) Nucleosome
D) Polysome

Q.32 Ribosomes exist in two forms, either attached with the RER or freely dispersed in the: (2012)

A) Tonoplast
B) Golgi bodies
C) Cytoplasm
D) SER

Q.33 Ribosomes are tiny organelles, which are involved in the synthesis of: (2015)

A) Protein
B) RNA
C) Nucleus
D) Nuclesome

Q.34 Ribosome present in prokaryotes are OR The prokaryotes possess small ribosomes of size: (2017, 2017-Retake & 2019)

A) 70S
B) 80S
C) 60S
D) 40S

Q.35 Which of the following organelle consist of two subunits: (2017-Retake)

A) Golgi body
B) Mitochondria
C) Ribosome
D) Plastids

Q.36 Site of protein synthesis in cells are (2018 & 2019)

A) Smooth endoplasmic reticulum /lysosome
B) Ribosomes
C) Nucleolus /golgi bodies
D) Endoplasmic reticulum /cisternae

Q.37 Ribosomes are made up of _____ and _____. (2018)

A) RNA and proteins
B) RNA and Lipids
C) RNA and Carbohydrates
D) Proteins and carbohydrates

Golgi Bodies

Q.38 Which of the following modifies proteins and lipids by adding carbohydrates? (2008)

A) Golgi apparatus
B) Polysome
C) Plasma membrane
D) None of these

Q.39 Which of the following organelles is concerned with cell secretion? (2011, 2014 & 2019)

A) Ribosomes
B) Golgi apparatus
C) Lysosomes
D) Mitochondria

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Q.40 The cisternae breaks up into vesicles from _____, _____ of Golgi complex: (2018)

A) convex, forming face
B) concave, forming face
C) concex, maturing face
D) concave, maturing face

Lysosomes:

Q.41 Tay-Sach's disease is due to the absence of an enzyme that is involved in the catabolism of: (2009)

A) Proteins
B) Carbohydrates
C) Ascorbic Acid
D) Lipids

Q.42 The enzymes of lysosomes are synthesized on: (2013)

A) Smooth endoplasmic reticulum
B) Rough endoplasmic reticulum
C) Chloroplast
D) Golgi apparatus

Q.43 The process by which unwanted structures within the cell are engulfed and digested with lysosome is known as (2013)

A) Endocytosis
B) Autophagy
C) Exocytosis
D) Hydrolysis

Q.44 The structures are involved in the breakdown of old organelles: (2018)

A) Leucoplasts
B) Lysosomes
C) Glyoxysomes
D) Peroxisomes

Q.45 Self eating of lysosomes is called: (2017-Retake)

A) Phagocytosis
B) Pinocytosis
C) Autophagy
D) Exocytosis

MICROSOMES (Peroxisomes and Glyoxysomes):

Q.46 During photorespiration, the glycolate is converted into glycine in a structure of cell called: (2009)

A) Golgi Bodies
B) Glyoxisome
C) Mitochondria
D) Peroxisome

Vacuole:

Q.47 Tonoplast bounds to which organelle (2018)

A) Endoplasmic reticulum
B) Nucleus
C) Golgi complex
D) Vacuoles

Q.48 The membrane separating the vacuole from cytoplasm is called: (2020)

A) Cristae
B) Cisternae
C) Tonoplast
D) Vacuolar membrane

Cytoskeleton:

Q.49 Which of the following is most slender in structure? (2008)

A) Microtubules
B) Microfilaments
C) Intermediate filaments
D) Both A & B

Q.50 Microtubules of spindle fibres are composed of a protein called (2010)

A) Tubulin
B) Actin
C) Myosin
D) Troponin

Q.51 In cross section each centriole consist of nine (each in triplets) of: (2018)

A) Microtubules
B) Microfilaments
C) Microvilli
D) Intermediate filaments

Centriols:

Q.52 Centrioles are made up of _____microtubules: (2013)

A) 9
B) 3
C) 12
D) 27

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Q.53 Which of the following structures is absent in higher plants and found in animal cells? (2013)

A) Cytoskeleton
B) Mitochondria
C) Centriole
D) Cytoplasm

Q.54 During animal cell division, the spindle fibres are formed from: (2014)

A) Mitochondria
B) Centrioles
C) Ribosomes
D) Lysosomes

Q.55 How many triplets of microtubules are present in centriole? (2015)

A) Ten
B) Eight
C) Nine
D) Seven

Q.56 At the beginning of nuclear division, the number of microtubule triplets in two pairs of centrioles that migrate to opposite poles are: (2015)

A) 9
B) 18
C) 108
D) 36

Mitochondria:

Q.57 The structures that are involved in the manufacture and supply of energy to the cell are: (UHS-MODEL PAPER 2011)

A) Centrioles.
B) Plastids.
C) Nucleolus.
D) Mitochondria.

Q.58 The inner membrane of mitochondria folded to form finger like structures called: (2011)

A) Cristae
B) Vesicles
C) Matrix
D) Cisternae

Q.59 In mitochondria, small knob like structures called F1 particles are found in: (2014)

A) Outer membrane
B) Outer compartment
C) Inner membrane
D) Inner compartment

Imp

Q.60 Which one of the following is the site of oxidative phosphorylation in mitochondria? (2014)

A) Cristae
B) Matrix
C) Outer membrane
D) Ribosomes

Q.61 Organelle involved in the synthesis of ATP is: (2014)

A) Ribosome
B) Mitochondria
C) Nucleus
D) Centriole

Q.62 Which organelle is bounded by two membranes? (2015)

A) Ribosome
B) Mitochondrion
C) Lysosome
D) Nucleolus

Q.63 Organelle involved in aerobic respiration: (2017-Retake)

A) Mitochondria
B) Lysosome
C) Plastids
D) Ribosome

Q.64 The inner membrane of mitochondria form extensive infoldings called OR The finger like infoldings which are formed by inner membrane of mitochondria are called: (2016, 2017-Retake & 2019)

A) Cristae
B) Cisternae / Matrix
C) Lamella / tonoplast
D) Bifidae /porin

Chloroplast:

Q.65 Which of the following are colorless? (2008)

A) Chloroplasts
B) Chromoplasts
C) Leucoplasts
D) None of these

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Q.66 In a plant cell chlorophyll is present in: **(UHS-MODEL PAPER 2011)**

A) Chromoplasts C) Stroma
B) Leucoplasts D) Chloroplasts

Q.67 The interior of the chloroplasts is divided into heterogenous structures embedded in the matrix known as: **(2011)**

A) Grana C) Thylakoids
B) Stroma D) Cisternae

Q.68 Which statement is correct about mitochondria and chloroplast: **(2018)**

A) Chloroplast and mitochondria cannot live independently
B) 70S ribosome is attached with the inner membrane of mitochondria and chloroplast
C) Chloroplast and mitochondria are single membrane structures
D) Number of mitochondria and chloroplast are same in all cells

Q.69 Among followings which cellular organelle contains circular DNA similar to those found in bacteria? **(2019)**

A) Ribosome C) Chloroplast
B) Lysosome D) Nucleus

NUCLEUS (nuclear membrane, nucleolus and chromosomes)

Q.70 In generalized plant cell the nucleus is: **(UHS-MODEL PAPER-2011)**

A) Present in middle of the cell. C) Absent.
B) Displaced to the side of the cell. D) Modified into endoplasmic reticulum.

Q.71 The ribosomal RNA is synthesized and stored in: **(2012 & 2017-Retake)**

A) Endoplasmic reticulum C) Golgi complex
B) Nucleolus D) Chromosomes

Q.72 The outer membrane of the nuclear envelope is at places continuous with the OR Nuclear membrane is continues with: **(2013 & 2017-Retake)**

A) Golgi apparatus C) Endoplasmic reticulum
B) Lysosymes D) Peroxisomes

Q.73 The function of nucleolus is to make **(2013)**

A) rDNA C) Ribosomes
B) RNA D) Chromosomes

Prokaryotic & Eukaryotic Cell:

Q.74 In prokaryotic cell, cell wall strengthening material is: **(2010)**

A) Cellulose C) Chitin
B) Silica D) Peptidoglycan

Q.75 The entire cell wall of bacteria is often regarded as a single huge molecule or molecular complex called **(2010)**

A) Capsule C) Slime capsule
B) Secondary wall D) Sacculus

Q.76 Which one of the following organelle is found in both prokaryotic and eukaryotic cells? **(2016)**

A) Centriole C) Nucleus
B) Endoplasmic reticulum D) Ribosome

Q.77 Which one of the following structures is present in both animal and plant cells but absent in prokaryotic cells? **(2017)**

A) Centrioles C) Plastids
B) Microtubules D) Sieve tubes

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Q.78 The structure present in a eukaryotic cell but absent in prokaryotic cells is: (2019)

A) Nucleus
B) DNA
C) Ribosomes
D) Cell surface membrane

Q.79 In which type of cells, cell wall is not present? (2019)

A) Plant cells
B) Fungal cells
C) Bacterial cells
D) Liver cells

Q.80 70S sized ribosomes are found in the cells of: (2020)

A) Algae
B) Fungi
C) Protozoans
D) Bacteria

ANSWER KEY

1.	D	11.	A	21.	B	31.	D	41.	D	51.	A	61.	B	71.	B
2.	C	12.	B	22.	B	32.	C	42.	B	52.	A	62.	B	72.	C
3.	A	13.	D	23.	A	33.	A	43.	B	53.	C	63.	A	73.	C
4.	D	14.	B	24.	B	34.	A	44.	B	54.	B	64.	A	74.	D
5.	C	15.	C	25.	C	35.	C	45.	C	55.	C	65.	C	75.	D
6.	C	16.	A	26.	C	36.	B	46.	D	56.	D	66.	D	76.	D
7.	C	17.	C	27.	A	37.	A	47.	D	57.	D	67.	A	77.	B
8.	D	18.	D	28.	B	38.	A	48.	C	58.	A	68.	B	78.	A
9.	C	19.	A	29.	D	39.	B	49.	B	59.	C	69.	C	79.	D
10.	A	20.	A	30.	D	40.	D	50.	A	60.	A	70.	B	80.	D

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PAST PAPER MCQS – 2021

Cell Wall:

Q.1 Cellulose is the major component of?
A. Primary wall
B. Secondary wall
C. Middle lamella
D. All of these

Q.2 The outermost layer in a typical plant cell would be_____.
A. Primary cell wall
B. Secondary cell wall
C. Middle lamellae
D. Cell surface membrane

Q.3 A plant cell wall is mainly composed of which of the following?
A. Protein
B. Starch
C. Cellulose
D. Lipid

Q.4 The first layer of cell wall which is formed is called?
A. Primary wall
B. Secondary wall
C. Middle lamella
D. All of these

Q.5 Secondary cell wall of sclerenchyma cells is impregnated with?
A. Cellulose
B. Lignin
C. Murein
D. Pectin

Q.6 The cementing material between adjacent plant cells.
A. Cellulose
B. Hemicellulose
C. Middle lamella
D. All of the above

Q.7 Which of the following is non-living component of plant cell?
A. Nucleus
B. Cell wall
C. Cell membrane
D. All of these

Q.8 Cell wall of fungi contains:
A. Cellulose
B. Chitin
C. Peptidoglycan
D. Glycogen

Q.9 Components of secondary cell wall:
A. Cellulose, hemicellulose, pectin
B. Cellulose, hemicellulose, lignin
C. Cellulose only
D. Magnesium and calcium salts and pectin

Q.10 Cell wall is secreted by:
A. Cell membrane
B. Vacuole
C. Cytoplasm
D. Protoplast

Q.11 A cell without cell wall is termed as:
A. Tonoplast
B. Protoplast
C. Symplast
D. Epiblast

Q.12 Rectangular shape of plant cells in due to:
A. Cell wall
B. Cell membrane
C. Vacuole
D. Cytoskeleton

Q.13 Which has high affinity for water?
A. Lignin
B. Cellulose
C. All of them
D. None of these

Cytoplasm and Cell Organelles:

Q.14 Ribosomes combined with mRNA are called?
A. Lysosome
B. Nucleosome
C. Polysome
D. Polysomic

Q.15 Ribonucleoprotein particle are the name of?
A. RNA
B. DNA
C. Nucleus
D. Eukaryotic ribosomes

Q.16 **If 3 ribosomes attach to single mRNA at different points then how many similar proteins will form?**

A. 1 B. 2
C. 3 D. No similar protein

Q.17 **What is the approximate ratio of RNA and protein in a ribosome?**

A. 1:1 B. 2:l
C. 1:2 D. 1:3

Q.18 **Ribosomes are chemically composed of which of the following?**

A. Protein B. DNA
C. RNA D. Both A and C

Q.19 **It helps in attachment of two ribosomal units:**

A. Calcium ions B. Magnesium ions
C. Chloride ions D. Sodium ions

Q.20 **Which of the following organelles is not bound by a membrane?**

A. Ribosomes B. ER
C. Mitochondria D. Nucleus

Q.21 **60S and 40S subunit combine to form what size particle?**

A. 80S B. 90S
C. 100S D. 110S

Q.22 **Which of the following is synthesized by free floating ribosomes of cytoplasm in humans?**

A. DNA polymerase B. Salivary amylase
C. Pancreatic amylase D. Salivary lipase

Q.23 **The soluble part of the cytoplasm is known as?**

A. Cytosol B. Polysomes
C. Cisternae D. Chitin

Q.24 **Enzymes that are integral part of ribosomes are involved in the synthesis of which of the following molecules?**

A. Lipids B. Proteins
C. Carbohydrates D. All of these

Nucleus:

Q.25 **_____ is the heaviest particulate of the cell.** /Heart /Brain.

A. Golgi apparatus B. Cytoplasm
C. Mitochondria D. Nucleus

Q.26 **Which of the following cells do not possess a nucleus?**

A. Sieve tube cells B. Bacteria
C. Red blood cells D. All of the above

Q.27 **An animal has 80 chromosomes in its gametes, how many chromosomes will be seen in the animal's muscle cells?**

A. 120 B. 240
C. 40 D. 160

Q.28 **The number of nuclear pores is highly variable in eukaryotic cells because of?**

A. Cell size B. Number of chromosomes
C. Size of the nucleus D. Level of gene expression

Q.29 **Which statement about the nucleolus is not true?**

A. No membranous boundary B. Composed of two regions
C. Site of synthesis for rRNA D. Hereditary centre

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Q.30 **If an organism has a diploid number of 36, what is its haploid number?**
A. 12 B. 9
C. 18 D. 22

Q.31 **The 23rd pair of chromosomes in man is:**
A. Polymorphic B. Heteromorphic
C. Homomorphic D. Automorphic

Q.32 **Which of the following cell structure contains the highest concentration of RNA?**
A. Centriole B. Mitochondria
C. Nucleolus D. Nucleus

Q.33 **All chromosomes other than sex chromosomes are called:**
A. Autosomes B. Allosomes
C. Microsomes D. None of them

Q.34 **Somatic cells of humans have how many pairs of chromosomes in total?**
A. 10 B. 23
C. 24 D. 48

Q.35 **_____ is responsible for making ribosomal RNS (rRNA)**
A. Nucleus only B. Nucleus & nucleolus only
C. Nucleolus only D. None of above

Q.36 **The soluble sap of the nucleus in a plant cell is called?**
A. Cytoplasm B. Protoplasm
C. Nucleoplasm D. Protoplast

Q.37 **Factory of ribosomal synthesis is?**
A. Cytoplasm B. Nucleus
C. Nucleolus D. Endoplasmic reticulum

Q.38 **Double membranous organelle having pores:**
A. Chloroplast B. Mitochondria
C. Nucleus D. Cell membrane

Endoplasmic Reticulum:

Q.39 **Which of the following is not a function of Smooth Endoplasmic Reticulum (SER)?**
A. Synthesis of steroid hormones from cholesterol.
B. Detoxification of harmful drugs.
C. Synthesis of phospholipids for plasma membrane.
D. Synthesis of membrane proteins

Q.40 **Which of the following is a mesh of interconnected membranes involved in protein synthesis and transport?**
A. ER B. Cytoskeleton
C. Golgi apparatus D. All of these

Q.41 **Which of the following is false about the sarcoplasmic reticulum?**
A. The sarcoplasmic reticulum is a specialized smooth endoplasmic reticulum
B. The sarcoplasmic reticulum releases calcium ions into the cytoplasm of the muscle cell
C. A change in membrane potential causes the sarcoplasmic reticulum to become more permeable to calcium ions
D. The sarcoplasmic reticulum is found only in voluntary muscle cells

Q.42 **Cytoplasmic streaming movement causes flow of all of the following except?**
A. Glucose and salts B. Mitochondria
C. Golgi D. RER

Q.43 **Which one of the following is involved in lipid metabolism?**
A. RER B. Golgi apparatus
C. Chloroplast D. None

Q.44 Sarcoplasm is different form cytoplasm:
A. It contains sarcoplasmic reticulum
B. It contains glycogen
C. It contains glycogen and oxygen binding protein, myoglobin
D. All of these

Q.45 _____ are storage bodies for intracellular calcium.
A. RER
B. SER
C. Vacuoles
D. Golgi complex

Q.46 Smooth endoplasmic reticulum is not involved in:
A. Hormone secretion
B. Detoxification
C. Conversion of mRNA to amino acids
D. Lipoproteins and glycoproteins formation

Q.47 Which of the following is not the function of endoplasmic reticulum?
A. Transport of material
B. Mechanical support
C. Synthesis of conjugated molecules
D. All of theses

Q.48 Function of Smooth Endoplasmic Reticulum (SER) is_____.
A. Synthesis of intracellular proteins.
B. Synthesis of lipids.
C. Synthesis of extracellular enzymes.
D. Synthesis of extracellular proteins

Q.49 Spherical or tubular membranes which separate the material present in endoplasmic reticulum from that of cytoplasmic material are called?
A. Cytosol
B. Cisternae
C. Lysosomes
D. Cristae

Q.50 Which of the following is not the function of endoplasmic reticulum?
A. Transport of material
B. Mechanical support
C. Synthesis of conjugated molecules
D. All of these

Q.51 Network of tubules continuous with nuclear membrane:
A. RER
B. SER
C. Both A and B
D. None

Q.52 If a radioactive amino acid is given to an organism, the organelle that shows radioactivity very first time:
A. Golgi complex
B. Mitochondria
C. Nucleus
D. RER

Q.53 Sarcoplasmic reticulum cells are those cells that contain:
A. SER less
B. SER more
C. RER less
D. RER more

Q.54 _____ extend from nucleus and touch cell membrane.
A. SER
B. RER
C. Gogli apparatus
D. Both A and B

Q.55 It is not found in composition of ER:
A. Carbohydrates
B. Lipids
C. Proteins
D. DNA

Q.56 Which of the following is not a function of SER?
A. Synthesis of steroid hormones of cholesterol
B. Detoxification of harmful drugs
C. Synthesis of phospholipids for plasma membrane
D. Synthesis of membrane proteins

Mitochondria:

Q.57 ADP is regenerated by mitochondria into which of the following?
A. AMP
B. ATP
C. ADP
D. All of these

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Q.58 Which of the following is not present in mitochondria?
A. Enzymes B. Coenzymes
C. Ribosomes D. Thylakoid

Q.59 The outer and inner membranes of mitochondria are?
A. Structurally and functionally different
B. Structurally different but functionally similar
C. Structurally and functionally similar
D. Structurally similar but functionally different

Q.60 Which of the following is not a character of mitochondria?
A. It contains F 1 particles B. It is double membranous
C. is a self-replicating organelle D. Number of mitochondria is constant

Q.61 Inner membrane convulsions of the mitochondria are called?
A. Grana B. Cnstae
C. Thylakoid membrane D. Intergrana

Q.62 Diameter of mitochondria ranges between:
A. 0.5-1 µm B. 0.5-1 nm
C. 100-200 µm D. 100-200 nm

Q.63 It is a true statement:
A. A lot of mitochondria are present in axons
B. Less number of mitochondria are present in axons
C. A lot of mitochondria are present in dendrites
D. A lot of mitochondria are present in dendron

Q.64 Enzymes in mitochondrial matrix help in which of the following metabolic processes?
A. Krebs cycle B. Aerobic respiration
C. Fatty acid metabolism D. ALL A, B, C

Q.65 _____ plays role in respiration.
A. Mitochondria B. Chloroplast
C. Ribosome D. Golgi apparatus

Q.66 Which of the following combination is an example of self-replicating organelles?
A. Mitochondria and Ribosomes B. Mitochondria and Chloroplast
C. Mitochondria and Vacuole D. Mitochondria and Nucleus

Q.67 Which of the following is double membranous organelle?
A. Nucleus B. Mitochondria
C. Chloroplast D. All A, B, C

Q.68 F_1 particles are present in:
A. Chloroplast B. Mitochondria
C. Ribosome D. All of these

Golgi Apparatus/Golgi Complex/Golgi Bodies:

Q.69 Golgi complex was discovered by which scientist?
A. Robert Brown B. Camillo Golgi
C. De Duve D. Robert Hooke

Q.70 Proteins and lipids are converted into glycolipids and glycoproteins by adding carbohydrates by?
A. Ribosomes B. Cytoplasm
C. Golgi apparatus D. Endoplasmic reticulum

Q.71 Golgi complex is not responsible for the formation of secretory granules in _____cell.
A. Stomach B. Liver
C. Pancreatic D. Muscle

Q.72 Pancreas produces secretory granules that help in digestion. These granules after passing through endoplasmic reticulum are pinched off from the surface of Golgi apparatus?
A. Forming phase
B. Maturing phase
C. Any of these
D. None of these

Q.73 Shape of the maturing phase of the Golgi apparatus is?
A. Biconcave
B. Convex
C. Spherical
D. Concave

Q.74 Which organelle form cell membrane?
A. Cell wall
B. SER
C. RER
D. Golgi body

Q.75 Which is incorrectly matched:
A. Golgi apparatus – intercellular digestion
B. Cell membrane – cell recognition
C. SER – Carbohydrate metabolism
D. RER – protein synthesis

Lysosomes:

Q.76 What are Autophagosomes?
A. Those lysosomes which eat parts of their own cells to generate energy.
B. Those lysosomes which eat old and worn-out cellular organelles.
C. Lysosomes which help in extracellular digestion
D. Both A and B

Q.77 Lysosomes are known as "suicidal bags" because of?
A. Parasitic activity
B. Presence of food vacuoles
C. Hydrolytic activity
D. Catalytic activity

Q.78 Which of the following cell organelle does not contain DNA?
A. Nucleus
B. Mitochondria
C. Lysosomes
D. Chloroplast

Q.79 The process of self-digestion of selective nonfunctional organelle by cells through the actions of enzymes originating from the cell is called?
A. Pinocytosis
B. Endocytosis
C. Autophagy
D. Cytotoxicity

Q.80 Phagocytosis, autophagy and extracellular digestion are the functions of?
A. Lysosomes
B. Mitochondria
C. Golgi apparatus
D. All of these

Q.81 A disease caused by the absence of a lysosomal enzyme responsible for lipid catabolism:
A. Tay-Sach's disease
B. Phenylketonuria
C. Klinefelter's syndrome
D. Down's syndrome

Q.82 The cells which lack lysosomes would have difficulty in which of the following?
A. Digesting food
B. Moving cytoplasm
C. Protein packaging
D. Storage of energy

Q.83 Lysosomes are formed by:
A. RER
B. SER
C. Golgi complex
D. Mitochondria

Plastids/chloroplasts:

Q.84 The type of plastids found in roots of plants:
A. Chloroplasts
B. Chromoplasts
C. Leucoplasts
D. All of them

Q.85 In the plants, 50 or more thylakoids piled upon each other to form?
A. Granum B. Centrosome
C. Stroma D. Multinucleate

Q.86 The dense fluid filled region in the chloroplast is called?
A. Grana B. Stroma
C. Thylakoid D. Intergrana

Q.87 Enzymes in Calvin cycle are found in which cell organelle?
A. Smooth endoplasmic reticulum B. Chloroplast
C. Mitochondrion D. Golgi complex

Q.88 Which type of cell would be the most appropriate for the study of chloroplasts?
A. Conducting cell B. Pericycle cell
C. Photosynthetic cell D. All of these

Q.89 Stacked of thylakoids in chloroplasts is called?
A. Grana B. Stroma
C. Nucleus D. None of these

Q.90 Which of the following organelle is involved in the release of oxygen?
A. Mitochondria B. Chloroplast
C. Ribosomes D. Both A and B

Q.91 The matrix surrounding the grana in the inner membrane of the chloroplast is called?
A. Cytosol B. Frets
C. Stroma D. Intergranal lamellae

Q.92 Plants store food in:
A. Chloroplast B. Chromoplasts
C. Leucoplast D. Both A and B

Q.93 Double membranous structure having coins like stacks of membranes are known as:
A. Mitochondria B. Nucleus
C. Chloroplast D. Golgi apparatus

Q.94 Yellowing and brown end of leaf is because of deficiency of:
A. Sodium B. Nitrogen
C. Potassium D. Iron

Q.95 Colour of petals is due to:
A. Chloroplast B. Plastid
C. Chromoplast D. Leucoplast

Q.96 Enzymes for light dependent reaction are present in:
A. Thylakoid membrane of chloroplast B. Lumen of grana
C. Stroma D. Outer membrane

Vacuoles:

Q.97 The membrane around the vacuole Is known as?
A. Tonoplast B. Elaioplast
C. Cytoplast D. Amyloplast

Q.98 The largest organelle in a mature living plant cell is?
A. Chloroplast B. Nucleus
C. Central vacuole D. Mitochondria

Q.99 Which of the following organelles are found in both plant and animal cells?
A. Central Vacuole B. Peroxisomes
C. Cell wall D. None of these

Q.100 Under microscopic examination, which cellular structure would differentiate a plant cell from an animal cell?
A. Ribosomes B. Cell membrane
C. Cytoplasm D. Cell vacuole

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Q.101 Which one of the following is not double membranous structure?
A. Vacuole
B. Mitochondria
C. Chloroplast
D. Nucleus

Prokaryote and Eukaryote:

Q.102 Which combination of organelles is usually present in both animal and plant cells?
A. Golgi complex, plastids, mitochondria
B. Plastids, mitochondria, endoplasmic reticulum
C. Golgi complex, endoplasmic reticulum, centrioles
D. Mitochondria, endoplasmic reticulum, ribosomes

Q.103 Unlike eukaryotes, prokaryotes have no membrane-bound organelles. How, then, are prokaryotes able to generate energy?
A. Prokaryotes do not generate energy
A. Prokaryotes produce energy via photosynthesis
B. Prokaryotes have specialized mitochondria
D. Prokaryotes generate proton gradients across their plasma membranes

Q.104 Which statement describes an incorrect difference between a plant cell and bacterial cell?
A. Bacterial cell has 70S ribosomes whereas a plant cell has 80S ribosomes.
B. Bacterial cell divides by binary fission whereas a plant cell divides by mitosis.
C. Bacterial cells do not have a nuclear membrane whereas plant cells have.
D. None of the above

Q.105 Which of the following components of an animal cell is not observed in a bacterial cell?
A. Nucleus
B. Ribosomes
C. Cell membrane
D. DNA

Q.106 Eukaryotes can share which of the following structures with prokaryotes?
A. Cell wall
B. Golgi
C. Mitochondria
D. Nucleoid

Q.107 The presence of which of the following feature would best indicate a eukaryotic cell?
A. Cilia
B. Plasma membrane
C. Membranous organelles
D. Ribosomes

Q.108 Which structure differentiates eukaryotic from a prokaryotic cell?
A. Ribosomes
B. Cell wall
C. Cell membrane
D. Golgi complex

Fluid Mosaic Model:

Q.109 The structure of plasma membrane is mainly held together by:
A. Proteins
B. Carbohydrates
C. Phospholipids
D. All of the above

Q.110 Ions cannot cross which part of the plasma membrane?
A. Phospholipid bilayer
B. Channel proteins
C. Both A and B
D. None of the above

Q.111 Damage to one of the following immediately kills the cell whether it is prokaryotic or eukaryotic?
A. Nucleus
B. Mitochondria
C. Cell membrane
D. All of these

Q.112 What part of the cell serves as an intracellular highway?
A. ER
B. Golgi apparatus
C. Cell membrane
D. Mitochondria

Q.113 Glycolipids in the plasma membrane are located at?
A. Inner leaflet of the plasma membrane
B. The outer leaflet of the plasma membrane
C. Evenly distributed in the inner and outer leaflets
D. Varies to cell types

Q.114 Which statement is true about lipid bilayer of plasma membrane?
A. Permeable to large ionic polar molecule
B. Permeable to small ionic molecule
C. Permeable to only polar molecule
D. None of the above

Q.115 Which among the following defines GPI anchored proteins?
A. Integral proteins of the plasma membrane
B. Proteins that bind to ion gated channels in plasma membrane
C. Proteins which randomly bind to lipids of plasma membrane
D. Peripheral proteins of plasma membrane

Q.116 Secretion of insulin from beta cells of pancreas is an example of which membrane function?
A. Endocytosis
B. Phagocytosis
C. Exocytosis
D. Pinocytosis

Q.117 Glycolipids and glycoproteins have structural role in which matrix structure of animal and bacterial cell?
A. Extracellular
B. Intracellular
C. Both A and B
D. Plasma membrane

Q.118 Fatty acids move through the plasma membrane by which transport method?
A. Passive transport
B. Non-facilitated transport
C. Active transport
D. Facilitated transport

Q.119 What percentage of protein is found in the cell membrane?
A. 20-40
B. 40-50
C. 60-80
D. 90

Q.120 Cell membrane contains:
A. Lipoproteins and glycolipids
B. Phospholipids and proteins
C. Lipoproteins and phospholipids
D. All of these

Q.121 Fluidity of cell membrane is due to:
A. Lipid bilayer
B. Proteins partially and fully embedded in it
C. Phospholipids slide pass each other and proteins embedded in it in mosaic manner
D. All of these

Q.122 Cell membrane is chemically composed of lipids and_____.
A. Protein
B. Carbohydrates
C. Both A and B
D. None of these

Q.123 According to fluid mosaic model, the plasma membrane is composed of which of the following?
A. Phospholipid
B. Intrinsic proteins
C. Extrinsic proteins
D. All of these

Q.124 Distribution of intrinsic proteins in the plasma membrane is?
A. Random
B. Symmetrical
C. Asymmetrical
D. None of these

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Q.125 Movement of the material across the cell membrane which does not requiring expenditure of metabolic energy is called?
A. Active transport
B. Passive transport
C. Diffusion
D. Both B and C

Q.126 Protein for cell membrane are made by:
A. Rough endoplasmic reticulum
B. Smooth endoplasmic reticulum
C. Nucleus
D. Mitochondria

Q.127 The fluid mosaic model of plasma membrane proposes that membranes are:
A. Solid
B. Semi-solid
C. Fluid
D. Liquid

Q.128 Which is not an example of transmembrane transport between different subcellular compartments?
A. Transport from the stroma into thylakoid space
B. Transport from the cytoplasm into the lumen of the endoplasmic reticulum
C. Transport from mitochondrial intermembrane space into the mitochondrial matrix
D. Transport from the endoplasmic reticulum into the Golgi complex

Q.129 Which of the modes of cellular transport requires energy?
A. Active transport
B. Passive transport
C. Osmosis
D. Diffusion

Q.130 Why phospholipids are major part of the lipid bilayer in plasma membranes?
A. They have a nitrogenous base in the head region
B. They have fatty acids in the tail region
C. They are amphipathic in nature
D. They have a phosphate group in the head region

Q.131 Carbon dioxide passes through plasma membrane of cells by:
A. Active transport
B. Passive transport
C. Facilitated diffusion
D. Passive diffusion

Q.132 Which of the statement about cell membrane is not true?
A. It contains protein molecules embedded in lipid bilayer
B. It is a differentially permeable membrane
C. It contains charged pores thus ions being charged particles across cell membrane much easier than neutral particles
D. It may get infolded to engulf solid or liquid material

Q.133 What was the unit membrane model?
A. Plasma membrane has lipid bilayer
B. Proteins are embedded in the lipid bilayer
C. Plasma membrane has charged pores for transport of materials which cannot penetrate through the lipid bilayer
D. All of the above

Q.134 Transverse diffusion (flip-flop) is the movement due to which of the following molecules?
A. Cholesterol molecule
B. Phospholipid
C. Protein
D. Amino acid

Q.135 How is the ATP molecule used by the cell?
A. Synthesis of complex compounds
B. Active transport
C. Muscular contraction
D. All of these

Q.136 Diffusion is opposite to
A. Osmosis
B. Effusion
C. Affusion
D. None of these

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Q.137 Which of the following substance is most favorable structural component of biological membranes?
A. Hydrophilic carbohydras
B. Hydrophobic fats
C. Both A and B
D. None of these

Q.138 Phosphatidylserine residues in the plasma membrane are located at?
A. The outer leaflet of the plasma membrane
B. Inner leaflet of the plasma membrane
C. Evenly distributed in the inner and outer leaflet
D. None of these

Q.139 Which one is not cytoplasmic body?
A. Mitochondria
B. Vacuole
C. Cell membrane
D. Ribosome

Q.140 Plasma membrane by volume is mainly made up of:
A. Proteins
B. Phospholipids
C. Glycoproteins
D. Carbohydrates

Q.141 It is not a role of cell membrane:
A. Initiation of cell division
B. Transport of material
C. Transmission of nerve impulse
D. Site for receptors

Q.142 Self-repairing is present in:
A. Cell wall
B. Cell membrane
C. Capsule
D. Slime

Q.143 The basic framework structure of all types of membranes re :
A. Glycolipids
B. Glycoproteins
C. Lipoproteins
D. Nucleoproteins

Q.144 Fibers of extracellular matrix are attached to _____ plasma membrane.
A. Phospholipids
B. Glycolipids
C. Proteins
D. Carbohydrates

Q.145 Which of the statements correctly describes why ions are unable to cross the plasma membrane without channel proteins?
A. They are unable to cross the hydrophilic phosphate heads of the lipid bilayer
B. They are unable to cross the hydrophobic tails of the lipid bilayer
C. They are unable to cross both the phosphate heads and fatty acid chains of the lipid bilayer
D. They are too big to cross the plasma membrane

Q.146 Hydrophobic character in plasma membrane is exhibited by:
A. Fatty acids in tail
B. Phospholipid head
C. Intrinsic protein
D. Extrinsic protein

Out of Syllabus:

Q.147 What would be the magnification power of the objective length in a microscope, if the eyepiece is of 10X and total magnification is 40X?
A. 4
B. 10
C.40
D. 400

Q.148 The function of the centrosome is?
A. Osmoregulation
B. Secretion
C. Protein synthesis
D. Formation of spindle fibres

Q.149 Centrioles are composed of how many triplets of microtubules?
A. 6
B. 9
C. 12
D. 15

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Q.150 A chromosome in which a centromere stays at one end is called?
A. Metacentric
B. Telocentric
C. Acrocentric
D. All of these

Q.151 Who opposed the idea that cell is an empty space bounded by thick wall?
A. Lorenz oken
B. Schwann
C. Robert Hook
D. Rudolph Virchow

Q.152 The image represent by compound microscope is:
A. Real
B. Virtual inverted
C. Virtual
D. Real inverted

Q.153 Cellular organelles that interact with hydrogen peroxide are called?
A. Glyoxysomes
B. Lysosomes
C. Ribosomes
D. Peroxisomes

Q.154 Compound Microscope was first used by:
A. A.V. Leeuwenhoek
B. Pasture
C. Janssen and Hans
D. None of these

Q.155 The long unbranched, slender tubulin protein is called?
A. Microtubules
B. Intermediate filament
C. Actin
D. All of these

Q.156 Which of the following is not a tenet of the Cell Theory?
A. Cells carry genetic information in the form of DNA
B. Cells are the basic functional unit of life
C. Cells arise from pre-existing cells
D. All cells have membrane-bound organelles

Q.157 A cell with fully elastic wall is placed in hypertonic solution. What will not occur?
A. Change in cell size and shape
B. The whole cell will shrink
C. Cytoplasm shrinks from the cell wall and undergoes plasmolysis
D. Decries in cell size

Q.158 Which of the following is involved in the conversion of fats to carbohydrates by oxidation of fats?
A. Peroxisomes
B. Microsomes
C. Lysosomes
D. Glyoxysomes

Q.159 Magnifying power of electron microscope as compared to eye is?
A. 500 X
B. 100 000 X
C. 500 000 X
D. 250 000 X

Q.160 The human naked eye can differentiate between two points which are how much apart?
A. 1 mm
B. 0.1 mm
C. 2 dm
D. 1 dm

Q.161 The rigidity of leaves and younger parts of the plants is contributed by?
A. Vacuole
B. Mitochondria
C. Actin
D. Glyoxysomes

Q.162 The isolation of different cellular components to determine their chemical composition can be achieved by?
A. Cell differentiation
B. Chromatography
C. Cell fractionation
D. All of these

Q.163 Which of the following statement is incorrect about Glyoxysomes?
A. They contain enzymes which help in conversion of fatty acids into carbohydrate
B. They are abundant in soybeans but absent in pea
C. They are single membranous organelles
D. They are present throughout life of a plant and provide them with energy through Glyoxylate cycle

Q.164 What is the correct sequence of steps in cell fractionation?

A. Homogenization, centrifugation, separation
B. Separation, homogenization, centrifugation
C. Centrifugation, homogenization, separation
D. Homogenization, separation, centrifugation

Q.165 Size of eukaryotic cell is:

A. 10-20 µm
B. 10-100 µm
C. 100-200 µm
D. 20-40 µm

Q.166 Omnis cellula a cellula is hypothesized by:

A. Schleiden
B. Lorenz Oken
C. Louis Pasteur
D. Rudolph Virchow

Q.167 Cytoskeleton provides:

A. Motility, maintenance, synthesis
B. Maintenance, synthesis only
C. Movement, Maintenance only
D. None of above

Q.168 Cells have energy in the form of:

A. Chemical and electrical
B. Mechanical
C. Kinetic
D. Chemical

ANSWER KEY

1	A	21	A	41	D	61	B	81	A	101	A	121	A	141	A	161	A
2	A	22	A	42	D	62	A	82	A	102	D	122	C	142	B	162	C
3	C	23	A	43	D	63	A	83	C	103	D	123	D	143	C	163	D
4	C	24	B	44	D	64	D	84	C	104	D	124	A	144	C	164	B
5	B	25	D	45	B	65	A	85	A	105	A	125	D	145	B	165	B
6	C	26	D	46	C	66	B	86	B	106	A	126	A	146	A	166	D
7	B	27	D	47	C	67	D	87	B	107	C	127	B	147	A	167	A
8	B	28	D	48	B	68	B	88	C	108	B	128	D	148	D	168	D
9	B	29	D	49	B	69	B	89	A	109	C	129	A	149	B		
10	D	30	C	50	C	70	C	90	B	110	A	130	C	150	B		
11	B	31	B	51	A	71	D	91	C	111	C	131	B	151	C		
12	A	32	C	52	D	72	B	92	C	112	A	132	C	152	D		
13	B	33	A	53	B	73	D	93	C	113	B	133	A	153	D		
14	C	34	B	54	D	74	D	94	B	114	D	134	B	154	A		
15	D	35	C	55	D	75	A	95	C	115	D	135	D	155	A		
16	A	36	C	56	D	76	D	96	A	116	C	136	B	156	D		
17	A	37	C	57	B	77	C	97	A	117	D	137	B	157	C		
18	D	38	C	58	D	78	C	98	C	118	A	138	B	158	D		
19	B	39	D	59	A	79	C	99	B	119	C	139	C	159	D		
20	A	40	A	60	D	80	A	100	D	120	D	140	B	160	A		

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UNIT 5 PRACTICE EXERCISE

COORDINATION AND CONTROL

1. **Maximum speed of nerve impulse in humans is:**
   A) 100 m/sec
   B) 120 cm/sec
   C) 100 cm/sec
   D) 120 m/sec

2. **Two cerebral hemispheres communicate with each other by:**
   A) Infundibulum
   B) Stalk
   C) Corpus callosum
   D) Corpus cavernosum

3. **Menstrual cycle in females is under control of:**
   A) Limbic system
   B) Hypothalamus
   C) Pituitary
   D) Cerebrum

4. **Reticular formation is the characteristic of:**
   A) Midbrain
   B) Fore brain
   C) Hind brain
   D) Pons

5. **The number of cranial nerves are:**
   A) 42
   B) 24
   C) 36
   D) 12

6. **Cell bodies of sensory neurons constitute:**
   A) Dorsal root ganglion
   B) Dorsal root
   C) Ventral root ganglion
   D) Posterior root ganglion

7. **What happens when the voltage reaches to +35 mv?**
   A) Na^+ gates close and K^+ gates open
   B) Na^+ gates open and K^+ gates close
   C) Both Na^+ gates and K^+ gates open
   D) Both Na^+ gates and K^+ gates close

8. **Node of Ranviers are:**
   A) Exposed regions of axon
   B) Insulated regions of axon
   C) Terminal knobs at the end of axon
   D) Schwann cells present at equal distances

9. **Which of the following increases when an action potential is initiated?**
   A) Diffusion of sodium ions into neuron
   B) Diffusion of sodium ion out of neuron
   C) Diffusion of potassium ion out of neuron
   D) Diffusion of potassium ion into neuron

10. **Medulla, pons and cerebellum are parts of:**
    A) Fore brain
    B) Mid Brain
    C) Hind brain
    D) Limbic system

11. **It is important in coordinating the movements of the body:**
    A) Cerebrum
    B) Medulla
    C) Pons
    D) Cerebellum

12. **Saltatory transmission occurs in:**
    A) Non myelinated nerve fiber
    B) Myelinated nerve fiber
    C) Cell body
    D) Continuous fashion

13. **Neuroglia makes up as much as half of:**
    A) Muscular system
    B) Nervous system
    C) Glandular system
    D) Skeletal system

14. **Motor neurons have:**
    A) Short axon
    B) Long axon
    C) Long dendrites
    D) Dendron

15. **In action potential depolarization, repolarization and recovery takes _____ time?**
A) 2-3 seconds
B) 2-3 minutes
C) 2-3 milliseconds
D) 2-3 microseconds

16. **Other names for associative neurons are:**
A) Association neurons
B) Motor neurons
C) Intermediate neurons
D) Presynaptic neuron

17. **The part of the hind brain of vertebrates that controls automatic activities such as breathing, swallowing, heart rate and blood pressure:**
A) Pons
B) Medulla oblongata
C) Cerebellum
D) Reticular formation

18. **The net difference of charges between the inner and the outer surface of a non-conducting neuron is called:**
A) Membrane potential
B) Resting membrane potential
C) Active membrane potential
D) Electrical potential

19. **It is considered one out of three parts of fore brain and is further sub divided into three parts:**
A) Thalamus
B) Hypothalamus
C) Limbic system
D) Cerebrum

20. **The part of neuron which is already in resting potential is also considered to be in:**
A) Polarized state
B) Depolarized state
C) Repolarized
D) Refractory state

21. **The most important ions present in the neurons and surrounding fluids are:**
A) Sodium and calcium
B) Sodium and Potassium
C) Calcium and Potassium
D) Negative organic ions

22. **Sodium ions are _____ folds higher in concentration outside than inside the membrane surface of nerve cell:**
A) Three
B) Five
C) Seven
D) Ten

23. **Reflex actions below the neck are under control of**
A) Brain
B) Hypothalamus
C) Spinal cord
D) Pituitary gland

24. **The thalamus is a crucial relay center among the senses, the limbic system, and the:**
A) Cerebral cortex
B) Adrenal cortex
C) Cerebellum
D) Thalamus

25. **All are parts of brain stem except:**
A) Mid brain
B) Medulla
C) Pons
D) Cerebellum

26. **Peripheral part of brain contain:**
A) White matter
B) Blue matter
C) Grey matter
D) Yellow matter

27. **Outermost protective structure of CNS is**
A) Endoskeleton
B) Skull
C) Cranium
D) vertebral column

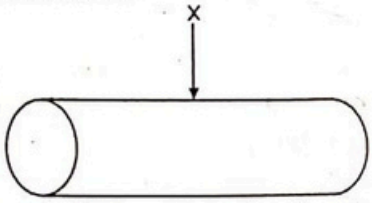
28. **Impulses travel very rapidly along nerves from the leg muscles of a mammal because:**
A) There is a high concentration of Na^+ ions inside the axons.
B) The nerves contain myelinated fibers.
C) There is a potential difference across the axon membranes.
D) The cell bodies of the fibers are contained within the dorsal root ganglion.

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29. **After the initial membrane depolarization, which of the following is the first event leading to muscle fibre contraction?**
A) Calcium ions flooding into the sarcoplasm
B) Hydrolysis of glycogen reserves
C) Movement of actin-myosin bonds, with hydrolysis of ATP
D) Release of energy from mitochondria

30. **Which of the following is common to all neurons?**
A) A cell body which contains a nucleus
B) A thick myelin sheath
C) Presence of nodes of Ranvier
D) Presence of Schwarnn cells

31. **The diagram shows part of an axon.**



As an action potential reaches point X, in which direction do K^+ ions move and by what process?

	X	Process
A	Into axon	Active transport
B	Into axon	Diffusion
C	Out of axon	Active transport
D	Out of axon	Diffusion

32. **During an action potential, how is the resting potential restored?**
A) By an increase in the membrane's permeability to potassium and chloride ions
B) By the oping of sodium activities gates
C) By the action of the sodium-potassium pump
D) By the opening of voltage-sensitive potassium channels and the closing of sodium activation gates.

33. **In reflex action the reflex arc is formed by:**
A) Brain—spinal cord—muscles
B) Receptor—spinal cord—muscles
C) Muscle—receptor—brain
D) Muscles—spinal cord—brain

34. **In the axon of motor nerve fibre, the nerve impulse travels**
A) Towards cell body
B) Away from cell body
C) Away from synapse
D) in both directions

35. **During the conduction of nerve impulse, the repolarization occurs with the**
A) Influx of K^+ ions
B) Efflux of K^+ ions
C) Efflux of Na^+ ions
D) Influx of Na^+

36. **A nerve fibre is depolarized when it acquires:**
A) A negative charge in the intracellular fluid and positive charge outside
B) A positive charge in the intracellular fluid and negative charge outside
C) A positive charge on both sides
D) A negative charge on both sides

37. **Duration during which a nerve is not able to conduct another impulse after the conduction of one is called:**
A) Chloride shift
B) Na^+, K^+ pump
C) Absolute refractory period
D) Saltation

38. **The hippocampus converts information from:**
A) Short term memory to long term memory
B) Long term memory to short term memory
C) Aggression to remembering fear
D) Does not convert information

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39. Hypothalamus does not control:
A) Sexual behaviour
B) Osmoregulation
C) Hunger and satiety
D) Creative thinking and consciousness

40. All the unconscious activities like heartbeat, involuntary beathing and gut peristalsis are controlled by:
A) Medulla oblongata
B) Cerebrum and medulla
C) Cerebellum and medulla
D) Cerebrum and cerebellum

41. Which is a part of spinal cord?
A) Ventricle
B) Vertebral canal
C) Ventral canal
D) Central canal

42. A nerve impulse will travel through a nerve fibre only if its membrane suddenly becomes more permeable to ions of:
A) Sodium
B) Calcium
C) Chloride
D) Potassium

43. Sodium pump stops operating during
A) Repolarization
B) Action potential
C) Resting potential
D) None of the above

44. During repolarization of nerve
A) Na^+ channels are closed and K^+ channels are open
C) K^+ gate closes and Na^+ gate opens
B) Both K^+ and Na^+ gates are closed
D) Both gates remain open

45. The longest cell in the body of an animal is
A) Osteocyte
B) Chromatophore
C) Neuron
D) Lymph corpuscle

46. Nerve cells are devoid of
A) Nucleus
B) Axon
C) Sarcolemma
D) Cytoplasm

47. Nissl bodies are found in
A) Mast cell
B) Chondrocytes
C) Osteocyte
D) Nerve cell

48. The parts of neurons that perform basic cellular functions, such as protein synthesis, are the
A) Somas
B) Dendrites
C) Axons
D) Synaptic knobs

49. The dendrites of a typical vertebrate motor neuron, compared to the neuron's axon, are generally?
A) Longer
B) More myelinated
C) Larger in diameter
D) More branched

50. Outermost covering of brain is called as
A) Dura mater
B) Pericardium
C) Pia mater
D) Gray matter

51. Axon is characterised by
A) Transformation of energy
B) Conduction of impulse
C) Receiving the impulse
D) Providing energy for impulse

52. Subarachnoid space occurs
A) Above pia mater
B) Inside blastocoel
C) Above dura mater
D) None of the above

53. **The part of a neuron that contains a nucleus and other organelles typical of cells is the**
A) Axon
B) Schwann cell
C) Dendrite
D) Cell body

54. **Which term does NOT belong with the others?**
A) Cerebrum
B) Cerebellum
C) Cerebral cortex
D) Cerebral hemispheres

55. **Which part of human brain is more developed in comparison of others?**
A) Cerebrum
B) Optic lobes
C) Cerebellum
D) Medulla oblongata

56. **The appetite and satiety centres in the brain are located in the region of the**
A) Hypothalamus
B) Cerebellum
C) Cerebral hemispheres
D) Medulla oblongata

57. **What type of neuron is most prevalent in the human body?**
A) Unipolar neuron
B) Mutipolar neuron
C) Bipolar neuron
D) None of the above

58. **Which part of mammalian brain controls the muscular co-ordination?**
A) Cerebrum
B) Medulla oblongata
C) Cerebellum
D) Corpus callosum

ANSWER KEY

1	D	11	D	21	B	31	D	41	D	51	B
2	C	12	B	22	D	32	C	42	A	52	A
3	C	13	B	23	C	33	B	43	B	53	D
4	A	14	B	24	A	34	B	44	A	54	B
5	B	15	C	25	D	35	B	45	C	55	A
6	A	16	C	26	C	36	B	46	C	56	A
7	A	17	B	27	A	37	C	47	D	57	B
8	A	18	B	28	B	38	A	48	A	58	C
9	A	19	C	29	A	39	D	49	D		
10	C	20	A	30	A	40	A	50	A		

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PAST PAPER MCQs – 2008 – 2020

NERVOUS SYSTEM

Nervous Coordination in Mammals:

Central Nervous System:

Q.1 **It controls the several automatic functions like breathing, heart rate and blood pressure:** **OR**
The part of brain which controls breathing, heart rate and swallowing is: (2008 & 2012)
A) Midbrain C) Medulla
B) Pons D) Cerebellum

Q.2 **Respiratory center is located in:** (2011)
A) Cerebrum C) Medulla
B) Cerebellum D) Hypothalamus

Q.3 **Thalamus and cerebrum are the part of:** (2013)
A) Spinal cord C) Hind brain
B) Forebrain D) Mid brain

Q.4 **The right and left cerebral hemispheres are connected by a thick band of nerve fibers called: OR**
Band of axons between two hemispheres is called: (2014 & 2017-Retake)
A) Medulla C) Pons
B) Corpus callosum D) Hippocampus

Q.5 **The part of the brain which guides smooth and accurate motions and maintains body position is called:** (2014)
A) Cerebrum C) Pons
B) Cerebellum D) Medulla

Q.6 **Part of hind brain responsible for the balance and equilibrium of body is called:** (2016)
A) Medulla C) Pons
B) Cerebellum D) Thalamus

Q.7 **Brain is protected and enclosed in:** (2016)
A) Lumbar vertebrae C) Vertebral column
B) Coccyx D) Cranium

Q.8 **Humans have homeostatic thermostat present in a specified portion of the brain that is:** (2016)
A) Lateral ventricle C) Spinal cord
B) Thalamus D) Hypothalamus

Q.9 **The CNS is protected by** (2017)
A) Three layers of meninges C) Four layers of meninges
B) One layer of meninges D) Two layers of meninges

Q.10 **White matter of spinal cord is made up of:** (2017)
A) Sensory nerve fibers C) Motor nerve fibers
B) Myelinated nerve fibers D) Mixed nerve fibers

Q.11 **Reflexes of eyes is detected by which part of brain:** (2017-Retake)
A) Mid brain C) Hind Brain
B) Fore brain D) Cerebral hemisphere

Q.12 **Spinal cord is protected by how many layers of menninges:** (2017-Retake)
A) 1 C) 3
B) 2 D) 4

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Peripheral Nervous System:

Q.13 A mix nerve consists of: **(UHS-Model Paper-2011)**
A) Motor and sensory nerve fibers.
B) Sensory and associative nerve fibers.
C) Motor and associative nerve fibers.
D) Dendrons and dendrites.

Q.14 Over-activity of sympathetic nervous system causes: **(2011)**
A) Disturbance of vision
B) Constipation
C) Decrease in blood pressure
D) Increase in heart rate

Q.15 The number of cranial nerves in humans is: **(2012)**
A) 31 pairs
B) 12 pairs
C) 24 pairs
D) 62 pairs

Q.16 Which one of the following is the effect of sympathetic nervous system? **(2014)**
A) Constriction of bronchi
B) Decrease in heart rate
C) Promotes digestion or peristalsis
D) Dilates the pupil

RECEPTORS, NEURONS & ITS TYPES (Sensory, Intermediate / relay and motor neurons)

Q.17 Which of the following receptor produce sensation of pain? **(2008)**
A) Mechanoreceptors
B) Nociceptors
C) Chemoreceptors
D) Thermoreceptors

Q.18 When your finger accidentally gets caught in the door, the pain message is sent to your brain through _____ : **(2008)**
A) Associative neurons
B) Sensory neurons
C) Motor neurons
D) The medulla

Q.19 Mechanoreceptors detect stimulus of: **(UHS-Model Paper-2011)**
A) Smell.
B) Light.
C) Pressure (touch).
D) Cold and warmth.

Q.20 The effectors in the human body which respond to a stimulus are: **(UHS-Model Paper-2011)**
A) Glands only.
B) Muscles only.
C) Both muscles and glands.
D) Bones.

Q.21 Which structures respond when they are stimulated by impulse coming through motor neuron? **(2011 & 2013)**
A) Receptors
B) Responses
C) Effectors
D) Transducers

Q.22 The part of neuron fiber which conducts nerve impulses away from the cell body is: **(2012)**
A) Dendron
B) Dendrites
C) Axon
D) Peripheral branch

Q.23 Pick out the pressure receptors: **(2017-Retake)**
A) Chemoreceptors
B) Mechanoreceptors
C) Photoreceptors
D) Thermoreceptors

Q.24 Which of the following produce response: **(2017-Retake)**
A) Effectors
B) Stimulators
C) Nerve
D) Brain

Q.25 Taste buds on the tongue are example of: **(2018)**
A) Thermo-receptors
B) Photoreceptors
C) Pressure receptors
D) Chemoreceptors

Q.26 Which one of the following is common to all neurons? **(2020)**
A) A cell body which contains a nucleus
B) A thick myelin sheath
C) Presence of node of Ranvier
D) Presence of Schwann cells

Q.27 Neurons are cells adapted for the rapid transmission of electrical impulses. To do this, they have long thin processes called: **(2020)**
A) Axons
B) Dendrites
C) Myelin sheath
D) Schwann cell

Reflex arc / Reflex action:

Q.28 The reflex action is the phenomena which only involves: (2019)

A) Brain, receptors, spinal cord
B) Receptors, effectors and spinal cord
C) Receptors, neurons, brain
D) Receptors and effectors

Nerve Impulse:

Q.29 Which one of the following conditions best describes active membrane potential: (2009)

A) ++++++++++Outside

Inside Neuron

B) ++++++++++ Outside
++++++++++
Inside Neuron

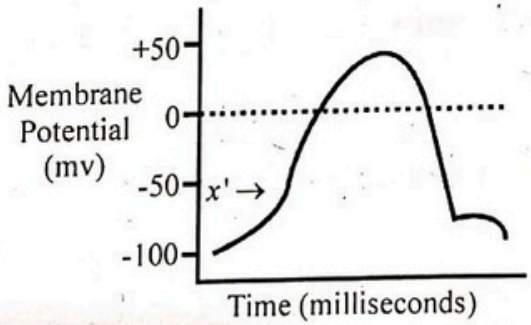
C) +-+-+-+-+-+-+ Outside
+-+-+-+-+-+-+
Inside Neuron

D) ----------Outside
++++++++++
Inside Neuron

Q.30 A typical neuron at rest (2010)

A) Is more positive outside than inside
B) Is more negative outside than inside
C) Has no charge on either side
D) has an equal charge on either side

Q.31 In the following diagram of action potential in a neuron, "x" depicts: (2015)



A) Depolarization
B) Polarization
C) Repolarization
D) Hyperpolarization

Q.32 Conduction of action potentials from one node of Ranvier to another in myelinated neurons is through: OR (2015 & 2018)
The nerve impulse which jumps from node to node in myelinated neurons is: (2017)

A) Hyperpolarization
B) Resting membrane potential
C) Depolarization
D) Saltatory conduction / Saltatory nerve impulse

Q.33 How many sodium ions are pumped out in response to two potassium ions transported into the membrane: (2018)

A) 3
B) 2
C) 1
D) 4

Q.34 If stimulation is above_____, impulses travel to the brain along the sensory neuron. (2019)

A) Action Potential
B) Threshold
C) Resting Potential
D) Recovery Period

Q.35 In an action potential, the permeability of sodium ions in the neuron increases due to: (2019)

A) Repolarization
B) The opening of sodium channels/gates
C) The action of the acetylcholinesterase enzyme
D) Sodium ions forming and ionic bonding

Synapse:

Q.36 Which of the following neurotransmitters lies outside the central nervous system?
OR
Neurotransmitter secreted at synapse outside the central nervous system is: OR Acetylcholine and noradrenaline are two types of _____used in our nervous system. (2009, 2015 & 2019)

A) Serotonin
B) Dopamine
C) Acetylcholine
D) Adrenaline

Q.37 In nervous system Chemical messengers are called: (2018)

A) Enzymes
B) Neurotransmitters
C) Chemoreceptors
D) Hormones

Q.38 Acetylcholine and noradrenaline are two types of _____used in our nervous system. (2019)

A) Hormones
B) Channel and carrier proteins in the cell membrane of a neuron
C) Enzymes
D) Neurotransmitters

Q.39 A _____ is a junction between two neurons or between a motor neuron and a muscle cell: (2020)

A) Impulse
B) Synapse
C) Axon
D) Cleft

Nervous Disorders:

Q.40 The disease is characterized by the decline in brain function: (2008)

A) Alzheimer's disease
B) Parkinson's disease
C) Epilepsy
D) None of these

Q.41 A neurological condition characterized by involuntary tremors, diminished motor activity and rigidity is called: (2011)

A) Epilepsy
B) Parkinson's disease
C) Alzheimer's disease
D) Cerebellar tremors

Q.42 Cause of Parkinson's disease is death of brain cells that produce: (2012)

A) Dopamine
B) Acetylcholine
C) ADH hormone
D) Oxytocin

Q.43 There is also evidence that high levels of _____ may contribute to the onset of Alzheimer's disease: (2013)

A) Ca
B) Mg
C) Mo
D) Al

Q.44 L-dopa or levodopa is used to get some relief from: (2013)

A) Epilepsy
B) Parkinson's disease
C) Alzheimer's disease
D) Dementia

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Q.45 Random, uncontrolled activity of some cells in the brain leading to chaotic activity in both sensory and motor nerves causes patients of to see and hear different strange things. (2016)

A) Epilepsy
B) Parkinson's disease
C) Alzheimer's disease
D) Huntington's disease

Q.46 The disease in which death of small number of cells in the basal ganglia leads to inability to select and initiate patterns of movement is known as: (2016)

A) Fever
B) Alzheimer's disease
C) Epilepsy
D) Parkinson's disease

Q.47 A neurological disorder characterized by the decline in brain function is _____. Its symptoms are similar to those diseases that cause dementia: (UHS-Model paper 2011, 2015,2016)

A) Parkinson's disease
B) Epilepsy
C) Alzheimer's disease.
D) Grave's disease

Q.48 There is evidence that high levels of aluminum may contribute to the onset of: (2014 & 2017)

A) Parkinson's disease
B) Alzheimer's disease
C) Lesch-Nyhan syndrome
D) Fragile X-syndrome

Behaviour:

Q.49 Reflexes and instincts type of behaviours respond to which combination/s? (2010)

A) Biological rhythms, territorial, courtship and development
B) The responses that do produce same result in different conditions
C) Aggression, mating and altruism
D) The responses that are predetermined like differentiation.

Q.50 : The directional movement toward or away from the stimulus is called: (2020)

A) Tropism
B) Orientation
C) Taxis
D) Non orientation

HORMONAL CONTROL

HORMONES AND THEIR CHEMICAL COMPOSITION

Q.51 Hormones are the organic compounds of varying structural complexity. Which of the following is not a function or property of these compounds? (2010)

A) They initiate new biochemical reactions
B) They are poured directly into blood
C) They may be proteins
D) They affect target cells

Q.52 Which one of the following is a precursor of steroid hormones? (2010)

A) Glycerol
B) Sterol
C) Amino acids
D) Cholesterol

Q.53 Which of the following is a hormone: (UHS-Model Paper-2011)

A) Gastric juice.
B) Pancreatic juice.
C) Bile.
D) Insulin.

Q.54 The hormones in the human body are produced by: (UHS-Model Paper-2011)

A) Brain only.
B) Liver only.
C) Pancreas only.
D) Different endocrine glands.

Q.55 Which group of hormones is made up of amino acids and their derivatives? (2011)

A) Vasopressin and antidiuretic hormone
B) Epinephrine and nor-epinephrine
C) Oestrogen and testosterone
D) Insulin and glucagon

Q.56 Ductless glands are known as: (2012)

A) Endocrine glands
B) Exocrine glands
C) Salivary glands
D) Bile glands

Q.57 Chemically, insulin and glucagon are: (2013)
A) Carbohydrates
B) Proteins
C) Lipids
D) Nucleic acids

Q.58 Which of the following is a steroid hormone? (2014)
A) Glucagon
B) Thyroxine
C) Epinephrin
D) Oestrogen

Hypothalamus & Pituitary Gland

Q.59 Which hormone continues to promote protein synthesis throughout the body even after the cease in growth? (2008)
A) TSH
B) ADH
C) ACTH
D) STH

Q.60 Neurosecretory cells are present in which part of brain? (2011)
A) Hypothalamus
B) Hindbrain
C) Pons
D) Cerebellum

Q.61 Vasopressin and Oxytocin are released from the: (2012)
A) Placenta
B) Ovary
C) Anterior pituitary
D) Posterior pituitary

Q.62 Hormones secreted by anterior pituitary and which control the secretions of hormones of other endocrine glands are known as: (2013)
A) Release factor
B) Inhibitor
C) Accelerator
D) Tropic or trophic hormone

Q.63 The gonadotrophic hormones of anterior lobe of pituitary include: (2014)
A) Prolactin, Thyroid stimulating hormone, Somatotrophin hormone
B) Follicle stimulating hormone, Luteinizing hormone, Prolactin
C) Adrenocorticotrophic hormone, Luteinizing hormone, Follicle stimulating hormone
D) Lutenizing hormone, Follicle stimulating hormone, Thyroid stimulating hormone

Q.64 Ejection of milk from mammary glands is under the control of which one of the following hormones? (2015)
A) Androgen
B) Oxytocin
C) Progesterone
D) Estrogen

Q.65 All the hormones released by anterior pituitary are tropic EXCEPT: (2017)
A) Thyroid stimulating hormone
B) Somatotrophin hormone
C) Adrenocorticotrophic hormone
D) Gonadotrophic hormone

Q.66 _____ hormone is released from posterior lobe of pituitary gland: (2018)
A) Thyroid stimulation hormone
B) Adrenaline
C) FSH
D) Antidiuretic hormone

Q.67 Blood solute potential is controlled by following hormone: (2018)
A) Vasopressin
B) Thyroxin
C) Epinephrine
D) Estrogen

Q.68 Which body function is controlled through positive feed-back mechanism? (2020)
A) Labor contractions
B) Body temperature
C) Insulin production
D) Thyroxin release

Thyroid and Parathyroid Gland

Q.69 The hormone called Parathormone regulates calcium level in the blood. This hormone is produced by: (UHS-Model Paper-2011)
A) Gonads.
B) Gut.
C) Thyroid gland.
D) Parathyroid.

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Q.70 How many iodine atoms are present in thyroxin? (2014)
A) 3
B) 4
C) 2
D) 5

Q.71 Thyroxin deficiency in adults results in a condition called: (2015)
A) Cretinism
B) Hypothyroidism
C) Thyrotoximia
D) Myxoedema

Q.72 The thyroxin hormone of thyroid gland acts directly on (2017)
A) Iodine metabolism
B) Protein metabolism
C) Glucose metabolism
D) Basal metabolic rate

Q.73 Deficiency of thyroxin in children causes: (2017-Retake)
A) Cretinism
B) Graves disease
C) Addison's disease
D) Cushing's disease

Q.74 Parathormone hormone production is controlled by the blood: (2018)
A) Sugar level
B) Ca level
C) Na level
D) Mg level

Adrenal Gland

Q.75 The central portion of adrenal gland (adrenal medulla) produces____ hormone. (2016)
A) Aldosterone
B) Epinephrine
C) Androgen
D) Corticosterone

Q.76 _____ hormones are called fight and flight hormones as they prepare an organism to face stressful situation. (2016)
A) Adrenaline, aldosterone
B) Epinephrine, nor-epinephrine
C) Cortisone, oxytocin
D) Thyroxine, nor-epinephrine

Q.77 Which of the following hormone is antagonistic to insulin? (2017-Retake)
A) Thymosin
B) Cortisol
C) Gastrin
D) Secretin

Q.78 A hormone which controls the uptake of sodium ions in Kidney and its maintenance in blood pressure: (2018)
A) Gonadotrophic Hormone
B) Somatotrophic Hormone
C) Thyroxin Hormone
D) Aldosterone Hormone

Q.79 : Which of the following neurotransmitters function, both as neurotransmitter and hormones, decreasing our perception of pain? (2020)
A) Epinephrine
B) Serotnin
C) Dopamine
D) Endorphins

Islets of Langerhans:

Q.80 Insulin is a hormone produced by: (UHS-Model Paper-2011)
A) Thyroid gland.
B) Parathyroid.
C) Adrenaline gland.
D) Pancreas.

Q.81 Which of the following is the function of glucagon hormone? (2011 & 2013)
A) Glycogen → Glucose
B) Glucose → Glycogen
C) Glucose → Lipid
D) Glucose → Protein

Q.82 Beta (β) cells of islets of Langerhans secrete a hormone that is called: (2012 & 2016)
A) Insulin
B) Glucagon
C) Antidiuretic hormone
D) Gastrin

Q.83 Alpha (a) cells of islets of Langerhans secrete hormone called: (2013 & 2015)
A) Glucocorticoid
B) Insulin
C) Glucagon
D) Aldosterone

Q.84 _____hormone is antagonistic to insulin and causes increase in blood glucose level. (2016)

A) Glucagon
B) Nor-epinephrine
C) Calcitonin
D) Thyroxine

Q.85 Which one of the followings is exocrine as well as endocrine? (2017)

A) Liver
B) Adrenals
C) Thyroid
D) Pancreas

Alimentary Canal:

Q.86 Gastrin is the hormone which is produced by the: (2012)

A) Liver
B) Adrenal gland
C) Pyloric region of stomach
D) Mucosal lining of intestine

Gonads:

Q.87 Ovulation is suppressed by progesterone via: (2017)

A) Only by inhibition of LH
B) Inhibition of FSH and stimulation of LH
C) Inhibition of LH and stimulation of FSH
D) Inhibition of FSH and inhibition of LH

Disorders of Endocrine Gland:

Q.88 Addison's disease is caused due to destruction of: (2011)

A) Adrenal cortex
B) Pituitary adrenal axis
C) Adrenal medulla
D) Hypothalamus

Q.89 Over activity of cortical hormone of adrenal gland causes: (2014, 2015)

A) Addison's disease
B) Parkinson's disease
C) Cushing's disease
D) Down's syndrome

PLANTS HORMONES: Auxins, Gibberellins and Abscisic Acid:

Q.90 Which of the following promotes both leaf and fruit growths? (2008)

A) Auxins.
B) Gibberellins.
C) Abscisic acid.
D) Ethane.

ANSWER KEY

1.	C	11.	A	21.	C	31.	A	41.	B	51.	A	61.	D	71.	D	81.	A
2.	C	12.	C	22.	C	32.	D	42.	A	52.	D	62.	D	72.	D	82.	A
3.	B	13.	A	23.	B	33.	A	43.	D	53.	D	63.	B	73.	A	83.	C
4.	B	14.	D	24.	A	34.	B	44.	B	54.	D	64.	B	74.	B	84.	A
5.	B	15.	B	25.	D	35.	B	45.	A	55.	B	65.	B	75.	B	85.	D
6.	B	16.	D	26.	A	36.	C	46.	D	56.	A	66.	D	76.	B	86.	C
7.	D	17.	B	27.	A	37.	B	47.	C	57.	B	67.	A	77.	B	87.	A
8.	D	18.	B	28.	B	38.	D	48.	B	58.	D	68.	A	78.	D	88.	A
9.	A	19.	C	29.	D	39.	B	49.	C	59.	D	69.	C	79.	D	89.	C
10.	B	20.	C	30.	A	40.	A	50.	C	60.	A	70.	B	80.	D	90	B

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PAST PAPER MCQs – 2021

Nervous System:

Q.1 Which part of the nervous system controls actions like walking and running?
A. Somatic nervous system
B. Parasympathetic nervous system
C. Sympathetic nervous system
D. Peripheral nervous system

Q.2 Which of the following does not form part of the central nervous system?
A. Brain
B. Spinal cord
C. Brain stem
D. Spinal nerves

Q.3 Central nervous system consists of:
A. Brain and spinal cord
B. Cerebrum and spinal column
C. Spinal nerves only
D. Cerebellum and brain stem only

Q.4 Nervous system is absent in:
A. *Sycon*
B. *Euplectella*
C. Jelly fish
D. Both a and b

Q.5 Brachial plexus supply to:
A. Heart
B. Upper limbs
C. Lower limbs
D. Abdomen

Q.6 The response of the sympathetic nervous system is known as:
A. Autonomic response
B. Flight response
C. Somatic response
D. Reflex response

Q.7 Parasympathetic system causes:
A. Digestion of food
B. Accelerated heart beat
C. High metabolism
D. Rapid muscle movement

Q.8 One of the actions of the parasympathetic nervous system is?
A. Inhibits peristalsis
B. Sweat secretion
C. Constriction of Pupils
D. Dilates Bronchioles

Q.9 The autonomic nervous system functions?
A. Act on external environment
B. Regulate the internal environment
C. Transmit motor information to brain
D. None of these

Q.10 The abundant inhibitory neurotransmitter found in the CNS is called?
A. Gamma-glutamyltransferase
B. Gamma-linolenic acid
C. Gamma-Aminobutyric acid
C. None of these

Transmission of action potential between cells–synapse:

Q.11 The main transmitter for synapses that lie outside the central nervous system is?
A. Adrenaline
B. Serotonin
C. Dopamine
D. Acetylcholine

Hormones:

Q.12 What is the chemical nature of antidiuretic hormone?
A. It is a protein
B. It is an amino acid derivative
C. It is made from cholesterol
D. It is a lipoprotein

Q.13 When vasopressin is not secreted, the condition that occurs is called?
A. Acromegaly
B. Diabetes mellitus
C. Dwarfism
D. Diabetes insipidus

Q.14 Cortisol brings about an increase in blood glucose level mainly by its production from protein and _____.
A. Glucagon
B. Insulin
C. Estrogen
D. Progesterone

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Q.15 Which disease is represented by excess MSH secretion?
A. Addison's B. Alzheimer's
C. Parkinson's D. Cohn's

Q.16 Primary hormone is:
A. STH B. FSH
C. LH D. Prolactin

Q.17 Which of the following is not a gonadotrophic hormone?
A. Estrogen B. LH
C. FSH D. Prolactin

Q.18 In females testosterone is produced from:
A. Graffian follicle B. Adrenal cortex
C. Adrenal medulla D. None

Q.19 Vascularization in endometrium in induced by:
A. LH B. Estrogen
C. FSH D. ICSH

Q.20 Which of the following is taken from blood by the liver due to insulin?
A. Glucagon B. Glucose
C. Glucocorticoid D. All of these

Q.21 Deficiency in the production of parathormone causes which of the following disease?
A. Brittle bones B. Soft bones
C. Rickets D. Tetany

Q.22 Tetany is considered to be the result of a
A. Hyperglycemia B. Hypercalcemia
C. Hypoglycemia D. Hypocalcaemia

Q.23 Thyroid stimulating hormone is produced by:
A. Anterior lobe of thyroid B. Exterior lobe of pituitary gland
C. Posterior lobe of pituitary gland D. Anterior lobe of pituitary gland

Q.24 In humans placenta is established by:
A. Hypothalamus B. Progesterone
C. Thalamus D. Estrogen

Q.25 Deficiency of cortical hormones causes:
A. Cushing syndrome B. Addison's disease
C. Dwarfism D. Cretinism

Q.26 Goiter develops in which case?
A. Hyperthyroidism B. Hypothyroidism
C. Both A & B D. None of the above

Q.27 Thyroid hormone increases metabolic rate by:
A. Breakdown of nucleic acids B. Breakdown of vitamins
C. Breakdown of proteins D. Breakdown of carbohydrates

Q.28 Insufficient thyroxine in adults leads to:
A. Dwarfism B. Myxedema
C. Cretinism D. Grave's disease

Q.29 Which of the following is the effect of STH?
A. Growth of body B. Body metabolism
C. Glucose breakdown D. Heat production

Q.30 Decreased production of parathyroid leads to:
A. Increase in calcium levels B. Increase in vitamin B_{12}
C. Decrease in calcium levels D. Decrease in vitamin B_{12}

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Q.31 It is not secreted by placenta:
A. Progesterone B. Estrogen
C. Human placental lactogen D. LH

Q.32 FSH is released from:
A. Pituitary gland B. Hypothalamus
C. Brain D. Blood

Endocrine Glands:

Q.33 The pea-shaped gland attached to the brain's hypothalamus is known as:
A. Iodopsin glands B. Thyroid gland
C. Rhodopsin glands D. Pituitary glands

Q.34 Thymus is found in human body _____.
A. In the medulla oblongata B. In the mediastinum if the upper thorax
C. Both A & B D. None

Q.35 Largest endocrine gland is_____.
A. Pancreas B. Pituitary
C. Thyroid D. Thymus

Feedback Mechanism:

Reflexes and Reflex arc:

Q.36 Which of these does not participate in reflex actions?
A. Motor neuron B. Effector
C. Pituitary D. Spinal cord

Q.37 Most reflex arcs are:
A. Monosynaptic reflex B. Polysynaptic reflex
C. Hemi Synaptic Reflex D. None of these

Q.38 The patellar reflex and the Achilles reflex are examples of:
A. Monosynaptic reflex B. Blood and water
C. Hemi Synaptic reflex D. Blood and fluid

Q.39 The term that should be last in the reflex sequence is:
A. Receptor B. Effector
C. Sensory neuron D. Motor neuron

Q.40 Reflex action is controlled by:
A. Peripheral nervous system B. Central nervous system
C. Autonomic nervous system D. Circulatory system

Q.41 The path taken by the nerve impulses in a reflex is called:
A. Nerve cell B. Reflex arc
C. Receptor cells D. Mixed nerve

Q.42 Reflex action is the simplest form of response in:
A. Higher Animals B. Smaller animals
C. Simpler animals D. Lowest animals

Q.43 Which part of the nervous system is responsible for controlling reflex action?
A. Corpus callosum B. Pons
C. Vermis D. Spinal cord

Q.44 Monosynaptic refers to the presence of how many chemical synapse/s?
A. 1 B. 2
C. 3 D. 4

Q.45 All of the following about reflex action are true except:
A. It is voluntary B. It is found in higher animals
C. It is involuntary D. All of these

Q.46 Which of the following is an example of superficial reflex?
A. Ankle jerk B. Knee jerk
C. Abdominal reflex D. Both A & B

Q.47 Reflex arc comprises of:
A. Motor nerve B. Sensory nerve
C. Both A and B D. Mixed nerve

Q.48 Which type of reflex affect inner organs?
A. Autonomic reflex arc B. Somatic reflex arc
C. Both A and B D. None of these

Q.49 A neural pathway that controls an action reflex is called:
A. Nerve cell B. Reflex arc
C. Receptor cells D. Mixed nerve

Q.50 Which of the following is made up of an afferent pathway from a receptor and an efferent pathway to an effector?
A. Nerve cell B. Reflex arc
C. Receptor cells D. Mixed nerve

Q.51 An involuntary and nearly instantaneous movement in response to a stimulus is called:
A. Reflex B. Reflex arc
C. Neuron D. Synapse

Q.52 The shortest way by which impulses travel from the receptor to the effector is called?
A. Synapse B. Reflex actin
C. Reflex arc D. Voluntary response

Q.53 The stretch reflex, the Golgi tendon reflex, the crossed extensor reflex and the withdrawal reflex are included in:
A. Stretch reflex B. Spinal reflex
C. Golgi tendon reflex D. Crossed extensor reflex

Levels of the Spinal Cord and its main Functions:

Q.54 Gray matter is primarily composed of:
A. Axons B. Synapse
C. Neuron somas D. None of these

Q.55 The spinal cord is part of:
A. Brain B. Central nervous system
C. Peripheral nervous system D. Somatic division

Q.56 What is the length of spinal cord?
A. 10-20 cm B. 20-30 cm
C. 40-50 cm D. 60-90 cm

Q.57 The spinal cord and spinal nerve roots are wrapped within three layers called:
A. Pleura B. Meninges
C. Synapse D. None of these

Q.58 The spinal cord acts as a link between body parts and_____.
A. Brain B. Skull
C. Heart D. Lungs

Q.59 The material in brain and spinal cord contains cell bodies and dendrite of nerve cells is:
A. White matter B. Blue matter
C. Brown matter D. Gray matter

Q.60 Choose the region of spinal cord:
A. Cervical B. Thoracic
C. Lumbar D. All of these

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Q.61 The spinal cord is continuous with which part of the brain?
A. Cerebrum B. Medulla oblongata
C. Cerebellum D. Pons

Q.62 In the peripheral nervous system, the nerves that arise from spinal cord and brain are called?
A. Frontal nerves B. Temporal nerves
C. Cranial nerves D. Spinal nerves

Q.63 Out of 31 pairs of spinal nerves, how many pairs of coccygeal nerves are there?
A. 1 B. 5
C. 10 D. 12

Q.64 The ventral root of the spinal cord contains axons of:
A. Sensory neuron B. Motor neuron
C. Mixed neuron D. Spinal neuron

Q.65 Out of 31 pairs of spinal nerves, how many pairs of lumbar nerves are there?
A. 5 B. 10
C. 15 D. 20

Q.66 The medulla oblongata is found on which of the following regions?
A. Top of brain B. Top of spinal cord
C. Behind the hypothalamus D. Behind the thalamus

Q.67 Out of 31 pairs of spinal nerves, how many pairs of sacral nerves are there?
A. 5 B. 10
C. 12 D. 15

Q.68 The dorsal root of spinal cord is:
A. Sensory B. Motor
C. Mixed D. All A, B and C are correct

Q.69 White matter has:
A. Myelinated sheath B. Non-myelinated sheath
C. Myelinated neuron D. Non-myelinated neuron

Q.70 The shape of grey matter is:
A. Spherical B. Mosquito
C. Butterfly D. Rectangular

Q.71 The spinal cord is divided into how many different regions?
A. 2 B. 6
C. 4 D. 8

Q.72 How many laminae present in the spinal cords grey matter?
A. 10 B. 8
C. 12 D. 9

Q.73 White matter is primarily composed of:
A. Axons B. Synapse
C. Neuron somas D. None of these

Q.74 Out of 31 pairs of spinal nerves, how many pairs of thoracic nerves are there?
A. 8 B. 10
C. 12 D. 15

Q.75 Number of pairs of spinal nerves are:
A. 31 B. 12
C. 13 D. None

Q.76 What is the most important structure between body and brain?
A. Neck B. Spinal cord
C. Blood vessels D. Skeleton

Parts of the Brain with their main Functions:

Q.77 Regulation of _____ is not a function of hypothalamus in humans.
A. Body temperature
B. Blood water potential
C. Urine osmolarity
D. Circadian rhythms & emotions

Q.78 The part of forebrain which lies below the cerebrum is?
A. Hypothalamus
B. Thalamus
C. Cerebellum
D. Cerebral cortex

Q.79 Which portion of the brain is primarily responsible for transmitting the information to other parts of the nervous system?
A. White matter
B. Gray matter
C. Medulla
D. All A, B and C

Q.80 The largest part of forebrain which controls the intelligence, emotions and skeletal muscles is classified as?
A. Hypothalamus
B. Thalamus
C. Cerebellum
D. Cerebrum

Q.81 Sensory areas that receive impulses from the skin are contained by which of the following?
A. Frontal lobe
B. Parietal lobe
C. Occipital lobe
D. Temporal lobe

Q.82 Breathing and heart rate is controlled by which of these?
A. Corpus callosum
B. Hippocampus
C. Medulla
D. Thalamus

Q.83 Which of the following is required for learning?
A. Medulla
B. Thalamus
C. Hypothalamus
D. Hippocampus

Q.84 Which of the followings is related to hypothalamus?
A. Sleep-wake cycle
B. Water balance
C. Thermoregulation
D. All of these

Q.85 Midbrain is also known as:
A. Pons
B. Mesencephalon
C. Medulla
D. All of these

Q.86 It is not correct about cerebrospinal fluid:
A. Present between meninges
B. Provides protection
C. Fills central canal of spinal cord
D. pH is below 7

Q.87 Brain part that coordinates skeletal muscles:
A. Cerebrum
B. Cerebellum
C. Amygdala
D. Medulla

Q.88 It acts as a relay center connecting hindbrain with the forebrain:
A. Forebrain
B. Midbrain
C. Hindbrain
D. Limbic system

Q.89 Which of the following is not the function of medulla oblongata?
A. Breathing
B. Swallowing
C. Connection between brain and spinal cord
D. Heart beat

Q.90 Which is involved in long term memory?
A. Cerebrum
B. Hypothalamus
C. Hippocampus
D. Thalamus

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Q.91 Which of these is involved in coordinated movements of the body?
A. Cerebellum
B. Cerebrum
C. Medulla
D. Pons

Q.92 The diencephalon comprises of:
A. Pons and medulla
B. Thalamus and limbic system
C. Pons and medulla
D. Hypothalamus and limb

Q.93 The brain is protected by:
A. Sacrum
B. Cranium
C. Humerus
D. Scapula

Q.94 The cerebrospinal fluid is similar in composition to _____.
A. Amniotic fluid
B. Pleural fluid
C. Synovial fluid
D. Blood plasma

Q.95 Which fluid bathes the neurons of brain and spinal cord and provides cushions against the bumps and jolts?
A. Blood
B. Interstitial fluid
C. Intracellular fluid
D. Cerebrospinal fluid

Q.96 The brain is mainly divided into_____ parts.
A. 2
B. 3
C. 4
D. 5

Q.97 The embryonic hindbrain gives rise to which structures in brain?
A. Diencephalon
B. Midbrain
C. Cerebrum and basal ganglia
D. Cerebellum, pons and medulla oblongata

Q.98 The communication between the two hemispheres is the function of:
A. Corpus callosum
B. Hindbrain
C. Cerebellum
D. Cerebrum

Q.99 The composition of brain stem is:
A. Spinal cord, axon, vertebra
B. Cerebrum, cerebellum, pons
C. Medulla, pons, midbrain
D. Thalamus, midbrain, pons

Q.100 Which lobe is involved in short-term memory, speech, musical rhythm and some degree of smell recognition?
A. Frontal
B. Parietal
C. Temporal
D. Occipital

Q.101 Which of the following is involved in sleeping and waking?
A. Thalamus
B. Brain stem
C. Hypothalamus
D. Cerebellum

Q.102 Which part of the brain connects the cerebrum with the spinal cord?
A. Forebrain
B. Cerebrum
C. Cerebellum
D. Brainstem

Q.103 The functional parts of forebrain are:
A. Thalamus and limbic system
B. Thalamus and cerebrum
C. Cerebrum, limbic system and thalamus
D. Cerebrum and limbic system

Q.104 The brain portion that is reduced in humans is:
A. Forebrain
B. Midbrain
C. Hindbrain
D. Limbic system

Q.105 The auditory relay center is found in:
A. Corpus callosum
B. Hindbrain
C. Forebrain
D. Midbrain

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Q.106 Hindbrain includes:
A. Medulla, pons and cerebellum.
B. Medulla, cerebellum and hypothalamus.
C. Cerebellum, medulla and brainstem.
D. All of the above.

Q.107 Which part increase the surface area of forebrain?
A. Cerebral cortex
B. Infundibulum
C. Corpus callosum
D. None of the above

Q.108 Which brain part is responsible for our basic and primitive emotions?
A. Limbic system
B. Thalamus
C. Hypothalamus
D. Cerebrum

Q.109 The thalamus and the hypothalamus are located in which region of the brain?
A. Brain stem
B. Cerebrum
C. Cerebellum
D. Diencephalon

Q.110 The left side of the body is controlled by:
A. Left cerebral hemisphere
B. Right cerebral hemisphere
C. Hippocampus
D. Corpus callosum

Q.111 The lighter, inner section of the brain is called:
A. White matter
B. Gray matter
C. Reflex arc
D. Medulla

Q.112 The brain area responsible for screening all incoming sensory data is:
A. Hypothalamus
B. Thalamus
C. Cerebellum
D. Cerebral cortex

Q.113 The brain part involved in conscious activities is:
A. Cerebral cortex
B. Limbic system
C. Brain stem
D. Thalamus

Q.114 Medulla, pons and cerebellum are found in which brain part?
A. Corpus callosum
B. Midbrain
C. Forebrain
D. Hindbrain

Q.115 The darker, outer portion of the brain is called:
A. White matter
B. Gray matter
C. Reflex arc
D. Medulla

Q.116 Central nervous system is present in:
A. Asymmetrical animals
B. Bilaterally symmetrical animals
C. Radial symmetrical animals
D. Both B and C

Nerve Impulse:

Q.117 Terminal branches of axons end in:
A. Myelin sheath
B. Dendrites of the next neuron
C. Synaptic cleft
D. Postsynaptic membrane

Q.118 Resting potential in nerve cells is maintained by:
A. Sodium pumps
B. Potassium pumps
C. Calcium pumps
D. None of the above

Q.119 What is the condition of the neurons under resting membrane potentials?
A. Inner surface of neuron is more positive
B. Both of these surfaces are equally positive
C. Outer surface of neuron is more positive
D. All of these

Q.120 Resting membrane potential is:
A. -80 mv
B. -70 mv
C. 50 mv
D. -85 mv

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Q.121 What is the approximate value of the active membrane potential?
A. 0.17V
B. -50mv
C. 0.05 V
D. Both A and B

Q.122 In myelinated neurons the impulse jumps from node to node, what is this transmission called?
A. Myelinated impulse
B. Jumping impulse
C. Saltatory impulse
D. All of these

Q.123 Nerve cells transmit messages faster when they have:
A. Many dendrites
B. Myelinated axons
C. Non-myelinated axons
D. Many genes

Q.124 The sites where nerve impulse is transmitted from the nerve endings to the skeleton muscle cell membranes?
A. Z discs
B. Dendrites
C. Sarcomeres
D. Neuromuscular junctions

Q.125 Repolarization is restored when:
A. Sodium ions diffuse in
B. Potassium diffuses out
C. Potassium diffuses in
D. Sodium diffuses out

Q.126 Acetylcholine is:
A. Enzyme
B. Metabolic intermediate
C. PNS neurotransmitter
D. CNS neurotransmitter

Steps Involved in Nervous Coordination:

Q.127 Stretch receptors are present in _____ of the tetrapods.
A. Hepatic arteries
B. Carotid arteries
C. Renal arteries
D. Pulmonary arteries

Q.128 Stimulus of deep pressure is detected by:
A. Pacinian corpuscles
B. Krause end bulb
C. Meissner's corpuscles
D. Merkel's endings

Q.129 Stretch receptors are present in _____ of tetrapods.
A. Muscles only
B. Organs only
C. Both A and B
D. Bone only

Q.130 Receptors are:
A. Brain
B. Muscle and glands
C. Eye and nose
D. Nerve cells

Q.131 Which types of the receptors are present in the ear?
A. Chemoreceptors
B. Photoreceptors
C. Thermoreceptors
D. Mechanoreceptors

Q.132 After leaving the spinal cord, the spinal nerve gets divided into nerve fibers, connecting to which of the following?
A. Receptors
B. Effectors
C. Midbrain
D. All parts of the body

Q.133 The sensory neuron has pain-sensitive endings in _____.
A. Hypothalamus
B. Bones
C. Skin
D. Muscles

Q.134 Synaptic vesicles discharge which of the following chemical at the neuromuscular junction?
A. Acetylcholine
B. Adrenaline
C. Estradiol
D. Testosterone

Q.135 Components of neural arc:
A. 5
B. 6
C. 7
D. 4

Neurons (Structure and Types):

Q.136 One of the functions of the neuroglial cells is to protect and support which of the following?
A. Nephrons
B. Myoid cells
C. Neurons
D. none of these

Q.137 The gap in the myelin sheath between adjacent Schwann cells is called?
A. Dendrite
B. Soma
C. Node of Ranvier
D. Stroma

Q.138 It carries impulses away from neuron:
A. Axon
B. Dendrites
C. Soma
D. Dendron

Q.139 The concentrations of the cell bodies of the neurons called?
A. Axons
B. Introns
C. Ganglia
D. Dendrites

Q.140 _____ carry information towards the soma of neuron.
A. Dendrites
B. Axon
C. Perikaryon
D. Both A and B

Q.141 Staining part of neuron is called:
A. Axon
B. Dendrites
C. Cell body
D. A and C

Q.142 The neurons responsible for converting various external stimuli that come from the environment into corresponding internal stimuli is called:
A. Motor
B. Sensory
C. Both A and B
D. Mixed

Q.143 Interneuron is also known as:
A. Relay neuron
B. Sensory neuron
C. Mixed neuron
D. Synapse

Q.144 Which of the following statement about neuron is incorrect?
A. They not only conduct impulses but also generate them
B. They are not the only cellular component of nervous system
C. They may show limited regenerative capabilities
D. Like all the living cell, when they mature and divide to form similar cells

Q.145 Motor neuron are multipolar but:
A. Less branched
B. More branched
C. No branched
D. None

Q.146 Node of Ranvier are also known as:
A. Myelin sheath
B. Neurofibril node
C. Myofibril node
D. None

Q.147 Nicotine may induce:
A. Vomiting
B. Diarrhoea
C. Tetanus
D. Both A & B

Q.148 A motor neuron and all the muscle fibers it supplies is called:
A. Motor unit
B. Neuromuscular junction
C. Neural unit
D. Microtubules

Q.149 The neurons that interpret and receive information and stimulate motor neurons are what type of neuron?
A. Sensory neurons
B. Motor neurons
C. Interneurons
D. Rotator neurons

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Q.150 Which is not a neurotransmitter?

A. Nor-epinephrine B. L-Dopa
C. Dopamine D. None

Q.151 Which form brain and spinal cord?

A. Sensory neurons B. Motor neurons
C. Interneurons D. Dendrites

Q.152 Cytoplasm and ribosomes are present in which part of neuron?

A. Dendrite B. Cell body
C. Axon D. All of these

Positive Feedback Mechanism:

Q.153 Which of the following is not an example of positive feedback?

A. A forest fire slowly expands outward, which provides it with even more fuel to bum.
B. During childbirth, oxytocin creates a stimulus which causes the hypothalamus to release more oxytocin
C. As more buffalo begin to run in a herd, the overall level of panic increases. This results in even more buffalo running.
D. As blood calcium levels increase, parathyroid hormone (PTH) is reduced.

Negative Feedback Mechanism:

Q.154 One of these processes does not happen as a result of negative feedback mechanism in humans?

A. Secretion of insulin by pancreas in response to increased blood glucose concentration.
B. Secretion of oxytocin in response to dilation of cervix during childbirth.
C. Secretion of glucagon by pancreas in response to decreased blood glucose concentration.
D. All of the above.

Out of Syllabus:

Q.155 When cocaine is used as a stimulant, it interferes with the CNS at the reuptake of which hormone?

A. Testosterone B. Dopamine
C. Serotonin D. Adrenaline

Q.156 Experience has no influence on which type of behavior?

A. Kinesis B. Imprinting
C. Habituation D. Insight learning

Q.157 Which of the following is not a function of Abscisic acid?

A. Inhibits stem and root growth during drought.
B. Closing of stomata during wilting.
C. Inhibits flowering in long-day plants
D. Promotes bud initiation during growth season

Q.158 Which statement is incorrect about ethylene production?

A. Climacteric is burst of respiratory activity in fruit ripening
B. It is associated with ethane production
C. It helps in fruit ripening
D. It helps in fruit set

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Q.159 The promoter of leaf senescence is?

A. Gibberellins
B. Cytokinins
C. Auxins
D. Abscisic acid

Q.160 Disorders caused due to disturbance in nerve impulse generation and transmission is called?

A. Nerve impulse disorder
B. Nervous disorder
C. Transmission disorder
D. Functional disorder

Q.161 A crawling snail when we tab glass retract into its shell, tapping has no effect. This form of learning is:

A. Habituation
B. Imprinting
C. Insight learning
D. Latent learning

Q.162 Most of brain tumors are caused by:

A. Mutation in DNA of proteins involved in glycolysis
B. Mutation in DNA of proteins involved in cell cycle regulation
C. Mutation in DNA of proteins involved in fatty acid metabolism
D. Mutation in DNA of proteins involved in extracellular transport

Q.163 Type of behavior that evolves during life cycle of individual:

A. Learning
B. Instinctive
C. Both A and B
D. None

Q.164 Brain tumors are due to:

A. Neuroglial cells
B. Neurons
C. Epithelial cells
D. Connective tissues

Q.165 Memory loss occurs in which disease?

A. Parkinson
B. Alzheimer
C. Epilepsy
D. All of these

Q.166 In which condition, brain produced more impulses than normal:

A. Epilepsy
B. Alzheimer's disease
C. Parkinson's disease
D. Lou Gehrig's disease

Q.167 Commercial use of cytokinins:

A. Keeping flower fresh
B. Keeping lettuce fresh
C. Break seed dormancy
D. All of these

Q.168 Which plant hormone promotes abscission?

A. Auxins
B. Gibberellins
C. Cytokinins
D. Abscisic acid

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ANSWER KEY

1	A	21	D	41	B	61	B	81	B	101	C	121	C	141	C	161	A
2	D	22	D	42	A	62	A	82	C	102	D	122	C	142	B	162	B
3	A	23	D	43	D	63	A	83	D	103	C	123	B	143	A	163	A
4	D	24	B	44	A	64	B	84	D	104	B	124	D	144	D	164	A
5	B	25	B	45	A	65	A	85	B	105	D	125	B	145	A	165	B
6	B	26	C	46	C	66	B	86	D	106	A	126	C	146	D	166	A
7	A	27	D	47	C	67	A	87	B	107	A	127	B	147	D	167	D
8	C	28	B	48	C	68	A	88	B	108	A	128	A	148	A	168	D
9	B	29	A	49	B	69	C	89	C	109	D	129	C	149	C		
10	C	30	C	50	B	70	C	90	C	110	B	130	C	150	B		
11	D	31	D	51	A	71	C	91	A	111	A	131	D	151	C		
12	A	32	A	52	C	72	D	92	B	112	D	132	B	152	B		
13	D	33	D	53	B	73	A	93	B	113	A	133	C	153	D		
14	A	34	B	54	C	74	C	94	D	114	D	134	A	154	B		
15	A	35	A	55	B	75	A	95	D	115	B	135	A	155	B		
16	D	36	C	56	C	76	B	96	B	116	B	136	C	156	A		
17	A	37	B	57	B	77	D	97	D	117	C	137	C	157	D		
18	B	38	A	58	A	78	B	98	A	118	D	138	A	158	A		
19	B	39	B	59	D	79	C	99	C	119	C	139	C	159	D		
20	B	40	B	60	D	80	D	100	C	120	B	140	A	160	B		

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UNIT 6 PRACTICE EXERCISE

DIVERSITY AMONG ANIMALS

1. **The integumentary and nervous system developed from:**
   A) Endoderm
   B) Ectoderm
   C) Mesoderm
   D) Mesoglea
2. **The animals without a body cavity belongs to:**
   A) Eumetazoa
   B) Coelomata
   C) Pseudocoelomata
   D) Acoelomata
3. **Pseudocoelom is characteristics feature of:**
   A) Aschelminthes (Nematoda)
   B) Mollusca
   C) Annelida
   D) Porifera
4. **Pseudocoelom is present in:**
   A) Cnidaria
   B) Round worms
   C) Flat worm
   D) Earth worms
5. **The pores by which the water leaves the body of sponges are called:**
   A) Ostia
   B) Anus
   C) Mouth
   D) Osculum
6. **The asexual reproduction in sponges occurs by:**
   A) Budding
   B) Spores
   C) Fragmentation
   D) Conidia
7. **Polymorphism is a characteristic of members of phylum:**
   A) Porifera
   B) Annelida
   C) Cnidaria
   D) Arthropoda
8. **Hydra belongs to phylum:**
   A) Mollusca
   B) Annelida
   C) Cnidaria
   D) Arthropoda
9. **The excretory system of flatworms is composed of:**
   A) Nephron
   B) Flame cells
   C) Nephridia
   D) Ganglia
10. **Round worms are:**
    A) Acoelomates
    B) Coelomates
    C) Pseudocoelomates
    D) None of them
11. **A free swimming trochophore larva is produced during the life cycle of:**
    A) Coelenterate
    B) Annelida
    C) Porifera
    D) Arthropods
12. **A blue colored respiratory pigment called hemocynanin is found in:**
    A) Molluscs
    B) Annelids
    C) Athropods
    D) Echinoderms
13. **Aquatic arthropods respire through:**
    A) Lungs
    B) Gills
    C) Skin
    D) Spiracles
14. **Excretory system in arthropods is composed of:**
    A) Flame cells
    B) Malpighian tubules
    C) Nephridia
    D) Nephrons
15. **A rasping tongue like radula having horny teeth is present in:**
    A) Sponges
    B) Annelids
    C) Coelonterates
    D) Molluscs

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16. **The animals in which body can be divided into two equal halves in one plane only, are called:**
A) Asymmetrical
B) Radial
C) Bilateral
D) Parazoa

17. **Animals that have their body cavity filled with parenchyma are:**
A) Acoelmates
B) Pseudocoelomates
C) Coelomates
D) Mesoderms

18. **It is universally accepted by biologists that mammals have evolved from reptilian ancestors called _____**
A) Cotylosaurs
B) Cyclostomata
C) Dinosaurs
D) Amphibians

19. **The largest invertebrate animal is**
A) Octopus
B) Anodonta
C) Squid
D) Oyster

20. **The cartilaginous fishes contain scales _____**
A) Placoid
B) Ganoid
C) Cycloid
D) Ctenoid

21. **An outer flexible cover of tunicates is _____**
A) Tunic
B) Cell wall
C) Cuticle
D) Pellicle

22. **Marsupium is a characteristic feature of _____**
A) Opossum
B) Dolphin
C) Echidna
D) Duckbill platypus

23. **The blood of arthropods is _____ in color**
A) Green
B) Brown
C) Red
D) Colorless

24. **The animal with exceptionally large brain is:**
A) Star fish
B) Snail
C) Octopus
D) Sepia

25. **Organ of voice in birds is called as**
A) Syrinx
B) Tongue
C) Larynx
D) Pharynx

ANSWER KEY

1	B	11	B	21	A
2	D	12	A	22	A
3	A	13	B	23	D
4	B	14	B	24	C
5	D	15	D	25	A
6	A	16	C		
7	C	17	A		
8	C	18	A		
9	B	19	C		
10	C	20	A		

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PAST PAPER QUESTIONS – 2008 – 2020

KINGDOM ANIMALIA

Basic Terminology:

Q.1 **Which of the following do not have body cavity?** **(2008)**
A) Pseudocoelomata
B) Acoelomata
C) Coelomata
D) None of these

Q.2 **Coelom is a cavity lined by:** **(2009)**
A) Mesoderm
B) Endoderm
C) Epiderm
D) Ectoderm

Q.3 **The nervous system develops from which of the following layer during embryonic development in animals:** **(2011)**
A) Mesoderm
B) Ectoderm
C) Endoderm
D) Mesoderm and endoderm

Q.4 **During development in an animal, mesoderm layer gives rise to:** **(2012)**
A) Nervous system
B) Alimentary canal lining
C) Muscular and skeletal system
D) Mouth

Q.5 **The cavity between body wall and alimentary canal is:** **(2013)**
A) Pseudocoelom
B) Acoelom
C) Coelom
D) Gastro vascular cavity

Q.6 **The layer which forms the lining of digestive tract and glands of digestive system is:** **(2013)**
A) Endoderm
B) Ectoderm
C) Mesoderm
D) Mesoglea

Q.7 **_____ is a triploblastic organism:** **(2015)**
A) Jelly fish
B) Sea anemone
C) Tapeworm
D) Corals

Q.8 **In radial symmetry all body parts are arranged around the central axis. Radial symmetry represents _____ mode of life.** **(2016)**
A) Sessile
B) Streamlined
C) Active
D) Parasitic

Q.9 **Following group is the example of acoelomates:** **(2018)**
A) Platyhelminthes
B) Molluscs
C) Aschelminthes
D) Annelids

Porifera:

Q.10 **Sponges which belong to phylum Porifera have:** **(UHS-Model Paper-2011)**
A) Maximum capacity to regenerate.
B) Very little capacity to regenerate.
C) Moderate capacity to regenerate.
D) No regeneration capacity.

Cnidarians:

Q.11 **Which of the following may build coral reefs along with coral animals?** **(2008)**
A) *Myxomycota*
B) Brown algae
C) Green algae
D) Red algae

Q.12 **Polymorphism is characteristic feature of:** **(2012)**
A) Porifera
B) Cnidaria
C) Annelida
D) Nematodes

Q.13 **Polymorphism is a feature exhibited by members of:** **(2014)**
A) Coelenterates
B) Arthropoda
C) Porifera
D) Platyhelminthes

Q.14 **_____ is a good example of polymorphism:** **(2015)**
A) *Hydra*
B) Star fish
C) Obelia
D) *Euplectella*

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Platyhelminthes:

Q.15 It is an endoparasite of humans, cattle and pig that completes its life cycle in two hosts: (2009)
A) Tapeworm
B) Aurelia
C) Liver fluke
D) Planaria

Q.16 The platyhelminthes liver fluke is: (UHS-Model Paper-2011)
A) Ectoparasite in humans.
B) Blood parasite.
C) Parasite of respiratory tract.
D) Parasite in the bile duct.

Q.17 *Fasciola* is endoparasite of: (2011)
A) Colon
B) Liver
C) Small intestine
D) Bile duct

Q.18 *Fasciola* is the name given to: (2012)
A) Tapeworm
B) Planaria
C) Liver fluke
D) Earthworm

Q.19 When beef which is not properly cooked is consumed by humans, they may become infected by: (2013)
A) Hook worm
B) Pin worm
C) Tape worm
D) Round worm

Q.20 *Schistosoma* is a parasite that lives in the _____ of its host: (2013)
A) Liver
B) Blood
C) Intestine
D) Kidney

Q.21 Which one of the following is the primary host of liver fluke? (2014)
A) Man
B) Sheep
C) Snail
D) Dog

Q.22 Which one of the following is free living carnivorous flatworm? (2014)
A) Liver fluke
B) *Dugesia*
C) Tapeworm
D) *Schistosoma*

Q.23 _____ is also called liver fluke: (2015)
A) *Dugesia*
B) *Taenia*
C) *Fasciola*
D) Coral

Q.24 Taenia is an endoparasite of human, pig and cattle which belongs to phylum: (2016)
A) Cnidaria
B) Aschelminthes
C) Annelida
D) Platyhelminthes

Q.25 Body of ____ consists of segments called proglottids which contain mainly sex organs. (2016)
A) *Planaria*
B) Liver fluke
C) *Acaris*
D) Tapeworm

Q.26 Snails are the intermediate hosts in: (2017)
A) *Fasciola* hepatica
B) *Taenia* solium
C) *Schistosoma*
D) *Ancylostoma duodenale*

Aschelminthes:

Q.27 Body cavity of round worms is called: (2011)
A) Pseudocoelom
B) Coelom
C) Acoelom
D) Enteron

Q.28 *Ascaris* is: (2012)
A) Diploblastic
B) Triploblastic
C) Haploid
D) Acoelomate

Q.29 *Ascaris* is which one of the following? (2014)
A) Ectoparasite
B) Intestinal parasite
C) Respiratory tract parasite
D) Urinogenital tract parasite

Q.30 Name common gut roundworm parasite of human and pig: OR _____ is a common parasite of the intestine of human and pig which belongs to phylum nematoda. (2015 & 2016)

A) *Ascaris lumbericoides*
B) *Lumbricus terrestris/ Schistosoma*
C) *Pheretima posthuma/ Taenia solium*
D) *Hirudo medicinalis/ Fasciola hepatica*

Q.31 Pseudocoelomates have a body cavity but it is not true coelom. Which one of the following is included in the group? (2016)

A) Planaria
B) Tapeworm
C) Earthworm
D) Ascaris

Q.32 _____ is an intestinal parasite of man belonging to phylum nematoda: (2017)

A) *Taenia solium*
B) *Wuchereria bancrofti*
C) *Ascaris lumbricoides*
D) *Schistosoma*

Q.33 Ascaris lumbricoide is parasite of: (2017-Retake)

A) Mouth
B) Liver
C) Intestine
D) Lungs

Annelida:

NO QUESTION HAS YET BEEN ASKED

Arthropoda:

Q.34 Name the class without antennae: (2008)

A) Archnida
B) Myriapoda
C) Insecta
D) Crustacea

Q.35 Book lungs are present in arthropods for exchange of gases in class: (2010)

A) Crustacea
B) Insecta
C) Myriapoda
D) Arachnida

Q.36 Which of the following is of economic importance to man: (UHS-Model Paper-2011)

A) Daphnia.
B) Millipede.
C) Silkworm.
D) Scorpion.

Q.37 *Trypanosoma* is transmitted in human beings by: (2011)

A) Plasmodium
B) Anopheles
C) House fly
D) Tse-tse fly

Q.38 *Tse-tse* fly causes the sleeping sickness and skin diseases by transmitting: OR Sleeping sickness in humans is caused by: (2009 & 2013)

A) *Anopheles*
B) *Aedes*/Insects
C) *Trypanosoma*
D) *Plasmodium*

Q.39 In arthropods, the body cavity is in the form of: (2015)

A) Coelom
B) Haemocoel
C) Pseudocoelom
D) Enteron

Q.40 Which of the following stage of metamorphosis resembles to its mother: (2017-Retake)

A) Egg
B) Nymph
C) Tadpole
D) Pupa

Q.41 Growth in the larva of young arthropods is restricted by: (2018)

A) Appendages
B) Exoskeleton
C) Reduced mitosis
D) Endoskeleton

Q.42 Chitin which makes the Exoskeleton in insects is further hardened by: (2018)

A) Protein and calcium carbonate
B) Protein and potassium carbonate
C) Protein and sodium carbonate
D) Protein and Sodium Bicarbonate

Mollusca:

Q.43 Which of the following damages wooden ships? (2008)

A) *Sepia*
B) *Limax*
C) *Teredo*
D) *Ostrea*

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Vertebrata:

Q.44 Name the vertebrates which are without jaws: (2008)
A) Osteichthyes
B) Cyclostomata
C) Chondrichthyes
D) None of these

Q.45 Sharks and rays are included in class: (2008)
A) Cyclostomata
B) Chondrichthyes
C) Osteichthyes
D) Tetrapods

Q.46 Which of the following are called placental mammals? (2008)
A) Prototheria
B) Eutheria
C) Metatheria
D) All of these

Q.47 Larvae of which group are similar to chordates? (2010)
A) Echinodermata
B) Annelida
C) Arthropoda
D) Nematoda

Q.48 Which of the following is exclusive character of mammals? (2010)
A) Homeothermic
B) Hair
C) Poikliothermic
D) Four chambered heart

Q.49 Select an anamniote from the following (2020)
A) Snake
B) Parrot
C) Frog
D) Crocodile

1.	B	11.	D	21.	B	31.	A	41.	B
2.	A	12.	B	22.	B	32.	D	42.	B
3.	B	13.	A	23.	C	33.	C	43.	A
4.	C	14.	C	24.	D	34.	C	44.	C
5.	C	15.	A	25.	D	35.	A	45.	B
6.	A	16.	D	26.	A	36.	D	46.	B
7.	C	17.	D	27.	A	37.	C	47.	B
8.	A	18.	C	28.	B	38.	D	48.	A
9.	A	19.	C	29.	B	39.	C	49.	B
10.	A	20.	B	30.	A	40.	B	50.	C

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PAST PAPER QUESTIONS

Characteristics and diversity among the animals (animal phyla, characteristics)

Q.1 The fate of each blastomere is foretold. What will be the cleavage?
A. Spiral and indeterminate
B. Radial and indeterminate
C. Radial and indeterminate
D. Spiral and determinate

Q.2 All of the following coelenterates show alternation of generation except:
A. *Hydra*
B. *Obelia*
C. *Aurelia*
D. All of these

Q.3 Which system is present in nematodes?
A. Sac - like digestive system
B. Circulatory system
C. Respiratory system
D. Tube - like digestive system

Q.4 These give rise to nematocysts in Cnidaria:
A. Cnidocytes
B. Gastrozooids
C. Hydrozoids
D. Mesoglea

Q.5 Typically spider's blood is blue due to the presence of which of the following.
A. Haemoglobin
B. Haemoerythrin
C. Haemocyanin
D. Both B and C

Q.6 80% of the food of sponges consists of which of the following?
A. Detrital organic particles
B. Phytoplanktons
C. Zooplankton and small animal
D. All of these

Q.7 Pseudocoelom develops from which of the following?
A. Blastopore
B. Plastoquinone
C. Splitting of mesoderm
D. Blastocoel

Q.8 Exoskeleton of coelenterates is made up of which of the following material?
A. Calcium
B. Silica
C. Chitin
D. Lignin

Q.9 Which of the following use book lungs to breathe?
A. Earthworm
B. Scorpions
C. Fish
D. All of these

Q.10 Sub-kingdom parazoa includes:
A. Annelida
B. Cnidaria
C. Porifera
D. Protozoa

Q.11 It is not a parasite:
A. Annelida
B. Nematoda
C. Porifera
D. Platyhelminthes

Q.12 Proglottids are present in:
A. *Dugesia*
B. *Schistostoma*
C. *Fasciola*
D. *Taenia*

Q.13 Respiratory pigment present in Molluscs is:
A. Hemoglobin
B. Haemocyanin
C. Myoglobin
D. None of the above

Q.14 Deuterostomes have:
A. Spiral cleavage
B. Mouth develop form blastopore
C. Mesoderm is formed form developing gut
D. Schizocoelous

Q.15 Malpighian tubules are characteristic of:
A. Earth worm
B. Leech
C. Cockroach
D. Star fish

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Q.16 In which era mammals dominated?
A. Paleozoic B. Mesozoic
C. Cenozoic D. Proterozoic

Q.17 Gut of acoelomates develop from:
A. Mesoderm B. Endoderm
C. Mesoglea D. Ectoderm

Q.18 *Periplaneta* belongs to which phylum?
A. Mollusca B. Annelida
C. Echinodermata D. Arthropoda

Q.19 The survival of an animal depends upon its ability to take some_____ from its environment?
A. Hydro carbons B. Organic molecules
C. Chemical D. Inorganic molecules

Q.20 Free living example of Platyhelminthes is?
A. *Dugesia* B. *Fasciola*
C. *Taenia* D. All of these

Q.21 Chitinous Setae are the locomotary organs of annelids which are present on?
A. Cell wall B. Prostomium
C. Nucleolus D. Parapodia

Q.22 Polychaeta have which of the following organs?
A. Tentacles B. Palps
C. Eyes D. All of these

Q.23 Which is not the characteristic of triploblasts?
A. They may be coelomate pseudocoelomate or acoelomate
B. They are included in grade bilateria
C. All of them have digestive system
D. All of them have blood vascular system

Q.24 *Ascaris Lumbericoides* is a:
A. Intestinal parasite B. Blood parasite
C. Stomach parasite D. Ureteral parasite

Q.25 In which of the following mesoderm is derived from wall of archenteron:
A. Protostomes B. Diploblastic
C. Deuterostomes D. Acoelomates

Q.26 Class Aves has advanced:
A. Pons B. Medulla
C. Cerebrum D. Cerebellum

Q.27 An example of largest invertebrate:
A. Squid B. Spider
C. Octopus D. *Armillaria*

Q.28 In which of the following animals, placenta is formed?
A. Prototherians B. Metatherians
C. Eutherians D. All of these

Q.29 Circulatory system is open type in all of the following except?
A. Arthropoda B. Gastropoda
C. Pelecypoda D. Cephalopoda

Q.30 Which of the following is correct about insects?
A. Four pair of legs B. Six jointed legs
C. Thorax is not present D. Abdomen is attached to head

Q.31 Sperms released in water are carried to the mesenchyme in sponges by?
A. Stipules
B. Spicules
C. Spines
D. Amoeboid cell

Q.32 The organs of locomotion in annelids are which of the following?
A. Muscles
B. Hydrostatic skeleton
C. Parapodia
D. Bones

Q.33 Division of labor is not seen in which of these multicellular animals?
A. Hydra
B. Euplectella
C. Blood fluke
D. Tapeworm

Q.34 Birds are different from mammals in all except:
A. They have feathers instead of hairs
B. They are warm blooded
C. They lay hard shell eggs
D. They have syrinx as voice organ

Q.35 Mammary glands are present in:
A. Eutheria
B. Metatheria
C. Prototheria
D. All of these

Q.36 Which of the following has lungs?
A. Shark
B. Dipnoi
C. Rays
D. None

Q.37 Placenta is related to:
A. Sheep
B. Spiny ant eater
C. Duck bill platypus
D. Kangaroo

Q.38 Main difference between hemichordata and chordata lies in:
A. Possession of body cavity
B. Number of germinal layers
C. Nervous system
D. Body symmetry

Q.39 Pseudocoelom is a characteristic feature of which of the following?
A. Coelenterates
B. Platyhelminthes
C. Annelids
D. Aschelminthes

Q.40 Polymorphism is a characteristic feature of which group of animals?
A. Cnidaria
B. Annelida
C. Platyhelminthes
D. Echinodermata

Q.41 The single main opening of the sponge cavity is known as?
A. Ostia
B. Osculum
C. Sponogocoel
D. both a and b

Q.42 All the animals of the grade radiata are which of the following?
A. Unicellular
B. Triploblastic
C. Both a and b
D. Diploblastic

Q.43 The only aquatic arthropods:
A. Crustaceans
B. Arachnida
C. Myriapods
D. Gastropods

Q.44 Cnidaria is characterized by which of the following?
A. Tissue level of organization
B. Coelenteron
C. Nematoblasts
D. All of these

Q.45 These animals have only left aortic arch in their circulatory system.
A. Crocodiles and mammals
B. Birds and mammals.
C. Mammals only
D. All of the above

Q.46 The animals in which coelom is formed due to splitting of mesoderm are known as which of the following?
A. Pseudocoelom
B. Schizocoelous
C. Amphicoelous
D. Enterocoelous

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Q.47 ***Mytilus* and *Anodonta* are example of which type of Molluscs?**
A. Gastropods
B. Bivalves
C. Cephalopods
D. None of the above

Q.48 **Which of the following is not a characteristic feature of tapeworm?**
A. Each body segment has two sets of male and female reproductive organs
B. The digestive tract develops from endodermal cells in the embryo
C. The body can be cut into two parts, which are mirror images of each other, in one plane only
D. None of the above

Q.49 **The skeleton of the sponges is in the form of variously shaped needle like structures called:**
A. Stipules
B. Brails
C. Spine
D. Spicules

Q.50 ***Euplectella* belongs to phylum**
A. Porifera
B. Ctenophora
C. Echinoderm
D. None of the above

Q.51 **All of the following are true for Platyhelminthes except?**
A. Triploblastic
B. Bilateral symmetry
C. Coelomate
D. Flatworms

Q.52 **The larvae of which of these animals resemble those of chordates?**
A. Starfish
B. Cuttlefish
C. Catfish
D. Butterfly

Q.53 **Inner layers of the sponges are made up of which of the following?**
A. Pinacocytes
B. Choanoderm
C. Pinacoderm
D. Choanocytes

Q.54 **The animals which belongs to division Radiata is/are?**
A. *Sycon*
B. Leech
C. Mites
D. *Aurelia*

Q.55 **The sponges in which sperms develop first are included in the category of?**
A. Peritandrous
B. Protandrous
C. Protandrous
D. Protandrous

Q.56 **Lack of symmetry is identified in which group of animals?**
A. Protozoa
B. Porozoa
C. Parazoa
D. Coelomates

Q.57 **Midgut in cockroach is a short narrow tube called which of the following?**
A. Hepatic caeca
B. Rectum
C. Stomach
D. Gizzard

Q.58 **Which of the following statement about chordates is true?**
A. They are protostomes
B. All chordates are vertebrates
C. They lack a coelom
D. Their anus is formed from the blastopore

Q.59 **Centipedes belong to class _____of arthropoda.**
A. Arachnida
B. Insect
C. Cephalopoda
D. Myriapoda

Q.60 **Which one is not the characteristic of Kingdom Animalia?**
A. All animals are ingestive heterotrophs
B. It is largest kingdom
C. All animals are eukaryotes
D. All animals develop from the dissimilar gametes

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Q.61 What is the origin of the acoelomate gut?
A. Ectodermal
B. Mesodermal
C. Endodermal
D. None of these

Q.62 Which of the following animals is not a protostome?
A. Cockroach
B. Butterfly
C. Sting ray
D. Earthworm

Q.63 Radial symmetry is found in which of the following organisms?
A. Coelenterata and Platyhelminthes
B. Arthropoda and Mollusca
C. Porifera and Coelenterata
D. Coelenterata and Echinodermata

Q.64 Which one of the following animals is not a tetrapod?
A. Snake
B. Cow
C. Mantis shrimp
D. Human

Q.65 These animals have three germinal layers but no coelom:
A. Flat worms
B. Round worms
C. Cnidarians
D. Chordates

Q.66 Which of the following are motile zooids in cnidarians?
A. Polyps
B. Medusae
C. Both A and B
D. None of these

Q.67 The name animal is derived from what word?
A. Aname
B. Anima
C. Anemia
D. None of these

Q.68 Which of the following are the first groups of invertebrates which have developed a closed circulatory system?
A. Nematodes
B. Annelids
C. Arthropods
D. Molluscs

Q.69 Which statement is true about gastropods?
A. Body is bilaterally symmetrical
B. Both aquatic and land species breathe through lungs
C. Triploblastic and acoelomates
D. All of the above

Q.70 Excretory system of Platyhelminthes consists of which of the following?
A. Nephridia
B. Flame cells
C. Malpighian tubules
D. Nephrons

Q.71 Which of the following organism has an eel like body?
A. Chondrichthyes
B. Osteichthyes
C. Cyclostomata
D. Both A and B

Q.72 Which combination of class and its description is correct?
A. Osteichthyes - a bony endoskeleton & gills covered by operculum
B. Reptilia - left aortic arch & internal fertilization
C. Nematoda - triploblastic & acoelomates
D. Cephalopods - dorsal nerve cord & bilateral symmetry

Q.73 *Ascaris* is characterized by which of the following?
A. Presence of true coelom and metamerism
B. Absence of tine coelom and metamerism
C. Presence of true coelom but the absence of metamerism
D. Absence of true coelom but the presence of metamerism

Q.74 Garden snail belongs to which class of Mollusca?
A. Gastropoda
B. Cephalopoda
C. Myriapoda
D. None of them

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Q.75 The Venus flower basket is also known as which of the following?
A. *Sycon* B. *Leucosolenia*
C. *Spongilla* D. *Euplectella*

Q.76 S-band locomotion is characteristically seen in which of the following?
A. Bony fish B. Fish like mammals
C. Cartilaginous fish D. All of these

Q.77 Which group of animals is not a deuterostome?
A. Echinodermata B. Arthropoda
C. Mollusca D. Both B and C

Q.78 One similarity between annelids and arthropods:
A. Closed circulatory system B. Nitrogenous waste product is uric acid
C. Ventral nerve cord D. None of the above

Q.79 The pores through which water enters the sponge body are called:
A. Osculum B. Ostia
C. Operculum D. None of the above

Q.80 Polyps are
A. Cylindrical and nutritive B. Umbrella like and free swimming
C. Tubular and nutritive D. Sessile and involve in sexual reproduction

Q.81 Both radial and bilateral symmetry is found in which of the following phylum?
A. Protozoa B. Porifera
C. Echinodermata D. All of these

Q.82 Phylum porifera is classified based on which of the following characteristic?
A. Branching B. Symmetry
C. Spicules D. Reproduction

Q.83 The outer body wall of sponges is made up of which cells?
A. Choanocytes B. Pinacocytes
C. Mesenchymal cells D. Cnidocytes

Q.84 Shell of egg is leathery in appearance in which of the following?
A. Amphibians B. Prototherians
C. Birds D. Reptiles

Q.85 Which of following system is segmentally arranged in annelids?
A. Excretory system B. Digestive system
C. Circulatory system D. Nervous system

Q.86 One of these animals is a prototherian:
A. Green plants B. Green algae
C. Animals D. Both A and B

Q.87 Which of the following character belongs to oligochaete?
A. No prominent head region B. Separate sexes
C. Trochophore larva D. Parapodia

Q.88 In sponge's fertilization takes place in which of the following?
A. Ectoderm B. Endoderm
C. Uterus D. Mesenchyme

Q.89 Aschelminthes is also known as which of the following?
A. Protozoans B. Eumetazoa
C. Protoctista ancestors D. Nematodes

Q.90 Which of the following are believed to have common origin with annelids?
A. Nematodes B. Arthropods
C. Molluscs D. None of these

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Q.91 Which of the following combinations is incorrect?
A. Nematoda - roundworms, pseudocoelomate
B. Arthropoda - coelom present, bilateral symmetry
C. Platyhelminthes - gastrovascular cavity, flatworms, acoelomate
D. Calcarea - gastrovascular cavity, coelom present

Q.92 Which statement correctly describes the alimentary canal of Hydra?
A. The alimentary canal is formed from the endodermal cells
B. The alimentary canal has a single opening
C. The alimentary canal is sac-like
D. All of these

Q.93 Nematoda is a taxon of the ranking:
A. Kingdom
B. Sub-kingdom
C. Phylum
D. Class

Q.94 Of the following which one is not included in Protostomes?
A. Arthropods
B. Hemichordates
C. Annelids
D. Molluscs

Q.95 Flame cells in *Planaria* constitute the:
A. Mechanoreceptors
B. Reproductive system
C. Respiratory system
D. Excretory system

Q.96 All the animals of the grade radiata are which of the following?
A. Unicellular
B. Triploblastic
C. Both A and B
D. Diploblastic

Q.97 Which of the following is not found in series proterostomia?
A. Annelida
B. Mollusca
C. Arthropoda
D. Echinodermata

Q.98 Which of the following is not associated to exoskeleton of arthropods?
A. Non-living
B. Secreted by endodermis
C. Acellular
D. Polysaccharide in nature

Q.99 Water vascular system is present in coelom in which phylum:
A. Echinodermata
B. Annelida
C. Arthropoda
D. Cnidaria

Q.100 Which of the following is incorrect about annelida?
A. Triploblastic organization
B. Bilateral symmetry
C. Segmentation
D. Pseudocoelom

Q.101 The internal buds are known as which of the following?
A. Spicules
B. Choanocytes
C. Gemmules
D. Both A and B

Q.102 All of the following are beneficial to human, except:
A. Honey bee
B. Silk worm
C. Locust
D. Insects for pollination

Q.103 How is the body plan of a lobster similar to that of a whale?
A. Closed circulatory system
B. Mouth develops from the blastopore
C. A tubular digestive system with a mouth and an anus
D. The gut is not lined by coelomic epithelium

Q.104 The nervous system of arthropods has:
A. A brain, a ventral nerve cord and several ganglia
B. A brain, a dorsal nerve cord and several ganglia
C. A brain, a dorsal and ventral nerve cord and several ganglia
D. A ventral nerve cord and several ganglia

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Q.105 Aschelminthes is also known as which of the following?
A. Eumetazoa B. Protoctista
C. Ancestors D. Nematodes

Q.106 A sponge of Antarctica which is more than a meter tall is known as?
A. *Euplectella* B. *Spongilla*
C. *Leucosolenia* D. *Scolymastra joubini*

Q.107 Gut in pseudocoelomates is made from which of the following?
A. Ectoderm B. Mesoderm
C. Endoderm D. All of these

Q.108 Asymmetrical body is a feature of phylum:
A. Annelida B. Arthropoda
C. Porifera D. Cnidaria

Q.109 Carapace is present in which class of arthropoda?
A. Arachnids B. Insects
C. Crustaceans D. All of these

Q.110 All of the following are coelomates except which?
A. Deuterostomes B. Hemichordates
C. Proterostomes D. Aschelminthes

Q.111 Which system is present in nematodes?
A. Sac - like digestive system B. Circulatory system
C. Respiratory system D. Tube - like digestive system

Q.112 Which of the following is an example of class by *bivalvia*?
A. *Anodonta* B. *Lolgio*
C. *Limax* D. *Sepia*

Q.113 Polychaeta have which of the following organs?
A. Tentacles B. Palps
C. Eyes D. All of these

Q.114 Which of the following is a character found in Echinodermata?
A. Marine habitat B. Spiny skin
C. Water vascular system D. All of these

Q.115 Radula is characteristic feature of:
A. Myriapods B. Mollusca
C. Echinoderms D. Cnidaria

Q.116 The body of which of the following organism is globular?
A. Cake urchin B. Brittle star
C. Sea cucumber D. Sea urchin

Q.117 Mantle in molluscs is present over which of the following regions?
A. Head B. Dorsal muscular foot
C. Dorsal visceral foot D. Both A and B

Q.118 A hydrostatic skeleton is:
A. Arthropods B. Fishes
C. Annelids D. Nematodes

Q.119 Eel like body is observed in
A. Chondrichthyes B. Osteoichthyes
C. Cyclostomata D. Both A and B

Q.120 Animals like starfish have small groups of neurons in each arm connected to a ring of neurons in the centre.
This type of nervous system is called _____.
A. Centralized nervous system B. Partially centralized nervous system
C. Diffuse nervous system D. Partially diffuse nervous system

Q.121 Shark liver oil is source of
A. Vitamin B and C
B. Vitamin D and K
C. Vitamin A and D
D. Vitamin E and A

Q.122 Which class has the largest number of animals?
A. Fishes
B. Reptiles
C. Insects
D. Mammals

Q.123 Nephridia are the excretory organs of members of which phylum?
A. Arthropoda
B. Cnidaria
C. Annelida
D. Mollusca

Q.124 Aquatic arthropods respire through which of the following?
A. Gills
B. Spiracles
C. Book lungs
D. Both A and B

Q.125 Vertebrates belong to phylum chordata because:
A. They have a vertebral column
B. The brain is enclosed by the skull
C. The embryos have gills
D. The body develops from three germinal layers

Q.126 Coelom that develops from the archenteron as outpouching is?
A. Pseudocoelom
B. Enterocoelom
C. Schizocoelom
D. Both a and b

Q.127 Aquatic arthropods belonging to this class breathe through gills:
A. Insects
B. Arachnids
C. Crustaceans
D. None of the above

Q.128 Salamander belongs to which of the following class?
A. Pisces
B. Aves
C. Reptiles
D. Amphibians

Q.129 The best function of coelom is described as:
A. To increase the size of the animals
B. To help in the functioning of reproductive system
C. To provide space for the development of organs and system
D. All of these

Q.130 Most multicellular organisms are which of the following?
A. Haploid
B. Diploid
C. Single nucleus
D. None of these

Q.131 Identify the characteristic of acoelomates?
A. Absence of mesoderm
B. Absence of brain
C. Coelom that is incompletely lined with a mesoderm
D. Solid body without a cavity surrounding internal organs

Q.132 Nervous system of nematodes consists of which of the following?
A. Ventral nerve cord
B. Dorsal nerve cord
C. Lateral nerve cord
D. All of these

Q.133 Which among the following is a diploblastic organism?
A. Hydra
B. Crabs
C. Squid
D. Earthworm

Q.134 Which of the following is an example of a tetrapod?
A. Flesh fly
B. Tarantula
C. Blue-ringed octopus
D. Hummingbird

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Q.135 In most triploblasts after embryonic development the three layers are represented as?
A. Separate layers of cells B. Structures formed from them
C. Their functions in body D. Structures associated with them

Q.136 It is a common character between reptiles and amphibians
A. Three chamber heart B. External fertilization
C. Poikilotherm D. Strong pectoral girdle

Q.137 Layer absent in diploblastic organisms:
A. Endoderm B. Epidermis
C. Mesoderm D. Ectoderm

Q.138 _____ do not perform photosynthesis:
A. Animals B. Bacteria
C. Pine tree D. *Spirogyra*

Q.139 It is a detritus feeder:
A. Leech B. Earthworm
C. Hook worm D. Pin worm

Q.140 Opossum, Kangaroo and Tasmanian wolf are examples of:
A. Metatheria B. Prototheria
C. Eutheria D. None of the above

Q.141 Most flatworms are:
A. Endoparasite B. Ectoparasite
C. Pesuodparasite D. External parasite

Q.142 Birds are superior to mammals because of
A. Mode of locomotion B. Mode of nutrition
C. Mode of reproduction D. Mode of voice production

Q.143 Which of the followings are characteristics of mollusca?
A. Segmented body B. Closed circulatory system
C. Muscular foot D. All of the above

Q.144 Polychaeta are present in:
A. Echinodermata B. Annelida
C. Arthropoda D. Mollusca

Q.145 One of these animals is prototheria:
A. Alligator B. Spiny ant eater
C. Penguin D. Porcupine

Q.146 Which of the following have no individual left?
A. Cotylosaurs B. Whales
C. Reptiles D. Pangolins

Q.147 Canal system in sponges develop due to which of the following?
A. Porous walls B. Reproduction
C. Folding of inner walls D. Gastrovascular system

Q.148 It is not a characteristics of kingdom animalia:
A. All animals are Ingestive heterotrophs
B. All animals are eukaryotes
C. It is largest kingdom
D. All animals develop from two dissimilar gametes

Q.149 Which one is non-cellular in most cases in animals?
A. Chlorenchyma B. Mesoderm
C. Sclerenchyma D. Mesenchyme

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Q.150 ***Sycon*** **is an example of:**

A. Platyhelminthes
B. Annelida
C. Protozoa
D. Porifera

Q.151 Pinworm is a common used for which if the following?

A. *Rhabditis*
B. *Ancylostoma duodenale*
C. *Taenia solium*
D. *Enterobius vermicularis*

Q.152 Which of the following are modern day descends of theropoda dinosaurs?

A. Birds
B. Lions
C. Panther
D. Bears

Q.153 Anucleated RBCs are observed in

A. Reptiles
B. Birds
C. Amphibians
D. Mammals

Q.154 Porcupine is a mammals because:

A. Scales on its body are modified as spines for protection against predators
B. It lays eggs and has mammary glands
C. Fur on its body is modified as spines and it is warm blood
D. None of the above

Q.155 It is considered a connecting link between reptiles and birds:

A. Pterandon
B. Avimimus
C. Caudipteryx
D. Archaeopteryx

Q.156 Which is not a mammal?

A. Whale
B. Walrus
C. Shark
D. Seal

Q.157 Which of them excretes in form of uric acid?

A. Birds
B. Human
C. Frog
D. None of these

Q.158 Which of the following class of mammals is believed to have strong resemblance with reptile?

A. Metatheria
B. Eutheria
C. Prototheria
D. Both eutheria and prototheria

Q.159 Which of the following is placental mammal?

A. Kangaroo
B. Bat
C. Duck bill platypus
D. Tasmanian wolf

Q.160 Which phylum is considered the largest?

A. Arthropoda
B. Mollusca
C. Annelida
D. Platyhelminthes

Q.161 Which of the following is ancient fossil fuel?

A. Fish
B. Reptile
C. Bird
D. Amphibian

Q.162 In arthropods, body cavity is in the form of:

A. Coelom
B. Haemocoel
C. Pseudocoelom
D. Enteron

Q.163 Largest vertebrate is:

A. Whale
B. Elephant
C. Giraffe
D. Hippopotamus

Q.164 Jelly fish belong to:

A. Deuterostomes
B. Proterostomes
C. Triploblastic
D. Diploblastic

Q.165 Placenta develops in embryonic state in:

A. Prototheria
B. Metatheria
C. All mammals
D. Eutheria

Q.166 Largest vertebrates are:

A. Elephants
B. Whales
C. Sharks
D. Anacondas

Q.167 Haemoglobin is found in plasma of

A. Earth worm
B. Sparrow
C. Rat
D. Lizard

Q.168 Ancestors to animals:

A. Protozoan
B. Algae
C. Slime molds
D. Bacteria

Q.169 Which of the following are not amniotes?

A. Mammals and birds
B. Birds and reptiles
C. Reptiles and amphibians
D. Amphibians and fishes

Q.170 Cephalothorax is characteristic of:

A. Arthropods
B. Myriapods
C. Gastropods
D. None of these

Q.171 Arachnids have simple eyes. Which means:

A. Every eye has a single lens
B. Every eye has a simple lens
C. All eyes have a single lens
D. All eyes have simple lens

Q.172 Rhodophyta belong to:

A. Algae, Protista
B. Zygomycota, Fungi
C. Zooflagellates, Protista
D. Slime molds, Protista

Q.173 Many _____ expel large amount of water by special structures called contractile vacuoles:

A. Porifera
B. Fish
C. Echinoderm
D. Protozoa

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ANSWER KEY

1	D	21	D	41	B	61	C	81	C	101	C	121	C	141	A	161	A
2	A	22	D	42	D	62	C	82	C	102	C	122	C	142	A	162	B
3	D	23	D	43	A	63	D	83	B	103	C	123	C	143	C	163	A
4	A	24	A	44	D	64	C	84	D	104	A	124	A	144	B	164	D
5	C	25	C	45	C	65	A	85	A	105	D	125	D	145	B	165	D
6	A	26	D	46	B	66	B	86	C	106	D	126	B	146	A	166	B
7	D	27	A	47	C	67	B	87	A	107	C	127	C	147	C	167	A
8	A	28	C	48	A	68	B	88	D	108	C	128	D	148	D	168	A
9	B	29	D	49	D	69	A	89	D	109	C	129	C	149	D	169	D
10	C	30	B	50	A	70	B	90	C	110	D	130	B	150	D	170	A
11	C	31	D	51	C	71	C	91	D	111	D	131	D	151	D	171	A
12	D	32	C	52	C	72	A	92	D	112	A	132	D	152	A	172	A
13	B	33	B	53	B	73	B	93	C	113	B	133	A	153	D	173	D
14	C	34	B	54	D	74	A	94	B	114	D	134	D	154	B		
15	C	35	D	55	D	75	D	95	D	115	B	135	B	155	D		
16	C	36	B	56	C	76	D	96	D	116	A	136	C	156	C		
17	B	37	A	57	C	77	D	97	D	117	C	137	C	157	A		
18	D	38	C	58	D	78	C	98	B	118	C	138	A	158	C		
19	C	39	D	59	D	79	B	99	A	119	C	139	B	159	B		
20	A	40	A	60	D	80	A	100	D	120	D	140	A	160	A		

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UNIT 7

PRACTICE EXERCISE

ENZYMES

1. **Specificity of an enzyme is determined by:**
   A) No. of amino acids
   B) Charge on substrate
   C) pH of environment
   D) Charge and shape of active site

2. **Biological molecules (proteins) which catalyze a biochemical reaction and remain unchanged after completion of reaction are called:**
   A) Cofactor
   B) Activator
   C) Coenzymes
   D) Enzymes

3. **An activated enzyme consisting of polypeptide chain and a cofactor is called:**
   A) Apoenzyme
   B) Coenzyme
   C) Holoenzyme
   D) Proenzyme

4. **Activators are usually derived from:**
   A) Vitamins
   B) Proteins
   C) Carbohydrates
   D) Metals

5. **A cofactor made of inorganic ion which is detachable is called:**
   A) Prosthetic group
   B) Activator
   C) Coenzyme
   D) Cofactor

6. **Enzymes _____ the activation energy of a chemical reaction:**
   A) Increase
   B) Don't effect
   C) Decrease
   D) Increase or decrease depending upon individual enzyme

7. **A three dimensional cavity bearing a specific charge by which the enzyme reacts with its substrate is called:**
   A) Active site
   B) Catalytic site
   C) Binding site
   D) Allosteric site

8. **Which step causes activation of catalytic site of an enzyme?**
   A) Change in pH of enzyme
   B) Change in the shape of substrate
   C) Formation of ES complex
   D) Change in temperature

9. **Lock and Key model was proposed by:**
   A) Emil Fischer
   B) Robin Williams
   C) Koshland
   D) Rudolph Virchow

10. **Which statement is incorrect about Lock and Key Model?**
    A) Specific enzyme can transform only a specific substrate
    B) Active site does not change before, during or even after the reaction
    C) Active site of an enzyme is a non-flexible structure
    D) It explains the mechanism of every chemical reaction

11. **In a naturally occurring chemical reaction, all active sites are occupied, the rate of reaction would be:**
    A) Minimum and constant
    B) Maximum and accelerating
    C) Zero and constant
    D) Constant and maximum

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12. **If the concentration of enzyme is kept constant, and amount of substrate is increased, a point is reached where increase in substrate concentration doesn't affect the reaction rate because of:**
A) Denaturation at higher substrate concentration
B) All enzymes working optimally
C) Ionization at higher substrate concentration
D) Inactivation at higher substrate concentration

13. **If more substrate to already occurring enzymatic reaction is added, more enzyme activity is seen because there is probably more:**
A) Substrate present than enzyme
B) Product present than substrate or enzyme
C) Enzyme available than substrate
D) Temperature available than optimum temperature

14. **If addition of substrates does not increase rate of reaction, this stage is:**
A) Saturation
B) Composition
C) Denaturation
D) Inhibition

15. **The active site of an enzyme:**
H-bonds + hydrophobic interactions.
A) Never changes
B) Forms bonds with substrate
C) Has no shape
D) Non-specific

16. **Excessive increase in temperature of medium causes the enzyme molecule to be:**
A) Activated
B) Denatured
C) Unaffected
D) None of these

17. **Extreme change in pH results in:**
A) Change in ionization of amino acids at the active site of the enzyme
B) Denaturation of the enzyme
C) Change in the ionization of the substrate
D) Increase in the reaction rate

18. **Inhibitors are chemically:**
A) Metals
B) Inorganic
C) Organic
D) All A, B, C

19. **At a certain point where conversion of reactants into product is maximum, the enzymes would be:**
A) Free
B) Activated
C) Denatured
D) Occupied

20. **Inhibitors which permanently denature an enzyme are called:**
A) Irreversible inhibitors
B) Reversible inhibitors
C) Permanent inhibitors
D) Allosteric inhibitors

21. **Optimum temperature of enzymes present in human body is:**
A) 27°C
B) 47°C
C) 37°C
D) 30°C

22. **A chemical substance which can react (in place of substrate) with the enzyme but is not transformed into product/s and thus blocks the active site temporarily or permanently is called:**
A) Co- enzyme
B) Inhibitor
C) Blocker
D) Cofactor

23. **Inhibitors which block the enzyme by forming weak bond are called:**
A) Competitive inhibitors.
B) Irreversible inhibitors.
C) Non- competitive inhibitors.
D) Reversible inhibitors

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24. **Malonic acid is an example of:**
A) Irreversible inhibitor
B) Competitive inhibitor
C) Reversible inhibitor
D) Non-competitive inhibitor

25. **If enzyme concentration is low than substrate, pH and temperature values are constantly equal to requirement then which of the following will increase rate of reaction:**
A) Increase in concentration of enzyme
B) Increase in pH
C) Increase in concentration of substrate
D) Increase in temperature

26. **The active site of an enzyme is:**
A) Neutral
B) Charge bearing
C) Two dimensional
D) Rigid

27. **Optimum pH for arginase:**
A) 7.00
B) 9.00
C) 8.00
D) 9.70

28. **Enzymes are essential in our body because these:**
A) Provide energy for metabolism
B) Are structural components of body
C) Catalyze biochemical reactions in cell
D) Coordinate nervous activities of body

29. **Which of the following combines with non-protein part to form functional enzyme?**
A) Coenzyme
B) Apoenzyme
C) Holoenzyme
D) Prosthetic group

30. **Why do cells contain many different enzymes?**
A) Enzymes are temperature sensitive
B) Enzymes are specific in their action
C) Enzymes are sensitive to pH
D) Enzymes are sensitive to substrate

31. **Which of the following organic molecule bind covalently with protein part of enzyme?**
A) Prosthetic group
B) Coenzyme
C) Activator
D) Apoenzyme

32. **All of the following statements are true about active site except:**
A) Charge bearing site
B) Consist of few amino acids
C) Always flexible
D) Can binds with inhibitor

33. **Which of the following enzyme is produced in liver?**
A) Chymotrypsin
B) Bile
C) Arginase
D) Lipase

34. **The rate of reaction will always be directly proportional to the concentration of enzyme, if:**
A) Substrate concentration is limited
B) Substrate concentration is unlimited
C) Substrate concentration is constant
D) Substrate concentration is decreased

35. **In prokaryotic cell enzymes for the cellular respiration are found in:**
A) Mitochondria
B) Cytoplasm
C) Mesosomes
D) Ribosomes

36. **Enzymes belong to which class of protein?**
A) Fibrous
B) Globular
C) Glycoprotein
D) Lipoprotein

37. **It is not true about the "Induced fit model":**
A) Enzymes are specific in their action
B) Substrate induces change in enzyme structure
C) Active site is flexible
D) Enzyme used as template in a chemical reaction

38. **According to induce fit model substrate induces change in:**
A) Enzyme function
B) Enzyme activity
C) Enzyme structure
D) Enzyme composition

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39. It is an enzyme secreted by small intestine:
A) Pepsin
B) Trypsin
C) Chymotrypsin
D) Sucrase

40. Zymogen is:
A) Enzyme poison
B) Enzyme modulator
C) Enzyme precursor
D) Enzyme inhibitor

41. Apoenzyme is:
A) Protein part of enzyme
B) Non protein part of enzyme
C) Activated enzyme
D) Co-enzyme

42. Optimum pH value for pepsin:
A) 2
B) 3
C) 1
D) 4

43. Decrease in temperature may cause:
A) Denaturation of enzyme
B) Ionization of enzyme
C) Inactivation of enzyme
D) Activation of enzyme

44. The rate of enzymatic reaction doubles for every_____ rise in temperature:
A) 05°C
B) 10°C
C) 15°C
D) 01°C

45. The rate of enzyme catalyzed reaction:
A) Is constant under all conditions
B) Cannot be measured
C) Decreases as substrate concentration increases
D) Can be reduced by inhibitors

46. It is an example of prosthetic group:
A) NAD
B) FAD
C) Biotin
D) Heme

47. It is not true about enzyme:
A) Globular proteins
B) Sensitive to change in pH and temperature
C) Always require co-factor
D) Lowers activation energy

48. All of the following enzymes are secreted in inactive form except:
A) Pepsin
B) Chymotrypsin
C) Trypsin
D) Catalase

49. Most of the enzymes are:
A) Present in cytoplasm
B) Present in nucleus
C) Attach to membrane system of cell
D) Attach to endoplasmic reticulum

50. Change in temperature from 30°C to 40°C in human body will cause:
A) Increase in rate of reaction
B) Decrease in rate of reaction
C) First increase then decrease in rate of reaction
D) First increase then become constant

51. The inhibitor which closely resembles the substrate in its molecular structure and inhibits the enzyme activity by binding to the active site of the enzyme is called
A) feedback inhibitor
B) Non – competitive inhibitor
C) Competitive inhibitor
D) Allosteric modulator.

52. The inhibitors that bind tightly and permanently to enzymes and destroy their globular structure and catalytic activity are:
A) Reversible inhibitors
B) Irreversible inhibitors
C) Competitive inhibitors
D) Non-competitive inhibitors

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53. **Enzyme succinate dehydrogenase converts succinate into**
A) Malate
B) Malonic acid
C) Citrate
D) Fumarate

54. **_____ the reaction rate is directly proportional to the substrate:**
A) At high conc. of substrate
B) At high conc. of enzyme
C) At low conc. of substrate
D) At low conc. of enzyme

55. **It is a chemical substance which can react in place of substrate, with enzyme, but is not transformed into products:**
A) Cyanide
B) Inhibitor
C) Antibodies
D) Antimetabolites

56. **The enzyme, which combines with non – protein part to form a functional enzyme is known as**
A) Co – enzyme
B) Holoenzyme
C) Apoenzyme
D) Prosthetic group

57. **Cofactor (prosthetic group) is a part of holoenzyme. It is**
A) Loosely attached inorganic part
B) Accessory non – protein substance attached firmly
C) Loosely attached organic part
D) None of these

58. **Which is not true for enzymes**
A) Enzyme is a complex structure of protein
B) Enzyme can be regulated by specific molecules
C) Enzyme is more sensitive for the changes of temperature and pH
D) Enzyme is not specific in action

59. **The substance, which is metal ion, essential for the normal functioning of enzyme is called**
A) Cofactor
B) Coenzyme
C) Holoenzyme
D) None of these

60. **Arrange the steps of catalytic action of an enzyme in order and choose the correct option.**
I. The enzyme releases the products of the reaction and the enzyme is free for another substrate.
II. The active site of enzyme is in close proximity of the substrate and breaks of chemical bonds of the Substrate.
III. The binding of substrate induces the enzyme to alter its shape fitting more tightly around the Substrate.
IV. The substrate binds to the active site of the enzyme fitting into the active site.
A) *IV, III, II, I*
B) *III, II, I, IV*
C) *II, I, IV, III*
D) *III, IV, I, II*

61. **Which one of the following is not true for enzymes?**
A) They act on a specific substrate.
B) They are made up of fat and sugar
C) They act at a specific temperature.
D) They act at a specific pH.

62. **The 'lock and key' model of enzyme action illustrates that a particular enzyme molecule**
A) May be destroyed and resynthesized several times
B) Interacts with a specific type of substrate molecule
C) Reacts at identical rates under all conditions
D) Forms a permanent enzyme – substrate complex

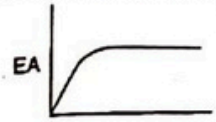
63. **Which one of the following is wrongly matched?**
A) Fungi – Chitin
B) Phospholipid – Plasma membrane
C) Enzyme – Lipopolysaccharide
D) ATP – Nucleotide derivative

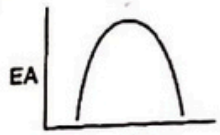
64. **Which of the following combinations is correct?**
A) Metal ions loosely attached with Apoenzyme – Activators.
B) Non – protein organic part attached tightly to the Apoenzyme – Prosthetic group.
C) Non – protein organic part attached loosely to the Apoenzyme – Coenzyme.
D) All of these

65. **Which one of the following statements about enzymes is true?**
1. **Enzymes are proteins whose three dimensional shape is key to their functions.**
2. **Enzymes are proteins whose three dimensional shape is key to their functions.**
3. **Enzymes are highly specific for reactions.**
4. **Enzyme activity is affected by the change in temperature and pH.**

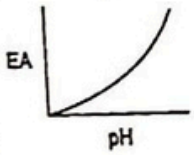
A) All except 2
B) All except 1
C) All except 3
D) All of these

66. **Which one of the graphs shows the effect of pH on the enzymatic activity (EA)?**

A)


B)


C)


D)


67. **Active site by virtue of its flexibility becomes complementary to substrate**
A) Induced fit model
B) Emil Fischer's proposal
C) Lock and key model
D) Statement is wrong

68. **It has optimum pH of 9.0**
A) Pancreatic lipase
B) Chymotripisn
C) Arginase
D) Catalase

69. **All enzymes can work at their maximum rate at a specific temperature called as:**
A) Suitable temperature
B) Minimum temperature
C) Optimum temperature
D) Maximum temperature

70. **Enzymes enhance the rate of a reaction by**
A) Lowering the activation energy of the reaction
B) Combining with the product as soon as it is formed
C) Forming a reactant product complex
D) Changing the equilibrium point of the reaction

71. **An example of competitive inhibition of an enzyme is the inhibition of**
A) Cytochrome oxidase by cyanide
B) Hexokinase by glucose 6-phosphaie
C) Succinic dehydrogenase by malonic acid
D) Carbonic anhydrase by carbon dioxide

72. **Ribozyme is**
A) Antibiotic
B) RNA enzyme
C) Protein enzyme
D) Hormone

73. **An organic substance bond to an enzyme and essential for its activity is called**
A) Isoenzyme
B) Holoenzyme
C) Coenzyme
D) Apoenzyme

ANSWER KEY

1	D	11	D	21	C	31	A	41	A	51	C	61	B	71	C
2	D	12	B	22	B	32	C	42	A	52	B	62	B	72	B
3	C	13	C	23	D	33	C	43	C	53	D	63	C	73	C
4	D	14	A	24	B	34	B	44	B	54	B	64	D		
5	B	15	B	25	A	35	C	45	D	55	B	65	D		
6	C	16	B	26	B	36	B	46	D	56	B	66	B		
7	A	17	B	27	D	37	D	47	C	57	B	67	A		
8	C	18	D	28	C	38	C	48	D	58	D	68	A		
9	A	19	D	29	B	39	D	49	C	59	A	69	C		
10	D	20	A	30	B	40	C	50	C	60	A	70	A		

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PAST PAPER MCQs 2008 – 2020

Definition and Characteristics of Enzymes.

Q.1 An activated enzyme consisting of polypeptide and a cofactor is known as (2010)
A) Amylase
B) Apoenzyme
C) Holoenzyme
D) Coenzyme

Q.2 Biochemically enzymes are: (UHS-MODEL PAPER-2011)
A) Carbohydrates.
B) Fatty acids.
C) Hormones.
D) Proteins.

Q.3 The presence of enzymes: (UHS-MODEL PAPER-2011)
A) Slows down the rate of reaction.
B) Increases the rate of reaction.
C) Does not show any change.
D) Completely stops the reaction.

Q.4 Enzymes increase the rate of reaction by: (2011)
A) Increasing temperature
B) Decreasing pH
C) Decreasing activation energy
D) Increasing activation energy

Q.5 An enzyme and substrate react through a specific feature or site present in enzyme known as: (2011)
A) Building site
B) Active site
C) Catalyst site
D) Inhibition site

Q.6 If the detachable co-factor is an inorganic ion then it is designated as: (2012)
A) Coenzyme
B) Prosthetic group
C) Holoenzyme
D) Activator

Q.7 All coenzymes are derived from: (2013, 2014)
A) Proteins
B) Vitamins
C) Nucleic acids
D) Carbohydrates

Q.8 If the cofactor/ non-protein part of enzyme which is covalently or tightly and permanently bonded to enzyme then it will be called: (2011,2013,2014)
A) Coenzyme
B) Activator
C) Apo-enzyme
D) Prosthetic group

Q.9 Which molecular structure of enzyme is essential for activity of enzyme? (2015)
A) Quaternary structure
B) Primary Structure
C) Secondary structure
D) Tertiary structure

Q.10 Some enzymes require helper which is a non-protein part for its efficient functioning; that is called: (2015)
A) Accelerator
B) Cofactor
C) Prosthetic group
D) Apoenzyme

Q.11 An enzyme required Mg^{++} to catalyze the substrate. The Mg^{++} is best identified as: (2016)
A) Prosthetic group
B) Activator
C) Co-enzyme
D) Inhibitor

Q.12 All enzymes are: (2017)
A) Fibrous proteins
B) Low molecular weight proteins
C) Lipoproteins
D) Globular Proteins

Q.13 The reactants on which enzyme works are: (2017)
A) Products
B) Metabolites
C) Substrates
D) Catabolites

Q.14 Which one of the following comprises of inorganic ions? (2017)
A) Coenzymes
B) Activator
C) Prosthetic group
D) Apo enzymes

Q.15 What is true about enzymes: (2017-Retake)

A) Fibrous proteins
B) Use in reaction
C) No effect on end product
D) Non-specific

Q.16 A non-protein part essential for proper and essential functioning of enzyme is called: (2018)

A) Extra factor
B) Additional factor
C) Efficient co-factor
D) Co-factor

Q.17 The type of energy reduced by the enzymes for biological reactions to occur is called the: (2019)

A) Light Energy
B) Activation Energy
C) Active Energy
D) Heat Energy

Q.18 : Enzymes work by lowering the _____ of the reactions they catalyse: (2020)

A) Kinetic energy
B) Activation energy
C) Heat energy
D) Potential energy

Mode / Mechanism of Enzyme Action.

Q.19 Enzyme after catalysis detaches itself from the product: (2009)

A) Completely
B) Incompletely
C) Changed
D) Unchanged

Q.20 Lock and key model of enzyme reacting with substrate was originally proposed by: (UHS-MODEL PAPER-2011)

A) Emil Fisher.
B) Koshland.
C) Robert Hook.
D) Robert Brown.

Q.21 The view that active site of an enzyme is flexible and when a substrate combines with it, cause changes in enzyme structure is known as: (2013)

A) Lock and key model
B) Sliding filament model
C) Induce fit model
D) Specificity model

Q.22 According to _____ model the active site of enzyme is modified as the substrate interacts with enzyme: (2016)

A) Induced fit
B) Lock and key
C) Emil Fischer
D) Fluid mosaic

Q.23 Modified form of Lock and model was proposed by: (2017-Retake)

A) Koshland
B) Fischer
C) Watson
D) Rosalind Fraklin

Q.24 : Lock and key model of enzyme action proposed by Emil Fischer suggests that: (2020)

A) Enzymes are unbiased for the substrate
B) Enzymes can modify their active sites
C) Enzymes are restricted to one reaction type
D) An enzyme can catalyze variety of reactions

Factors Affecting the Rate of Enzyme Action:

Q.25 The optimum temperature for enzymes of human body is: (2008)

A) 32 °F
B) 46 °C
C) 131 K
D) 37 °C

Q.26 Pepsin enzyme is produced in an inactive form and is activated in situation when it is required because: (2009)

A) Not produced in complete form
B) Quite capable of destroying cells internal structure
C) It does not work efficiently at that time
D) None of the above

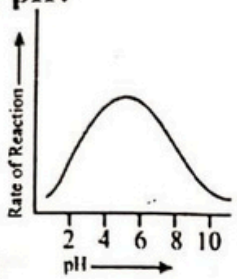
Q.27 Pepsin, protein digesting enzyme acts best at pH/ optimum pH: (UHS-MODEL PAPER-2011, 2015)

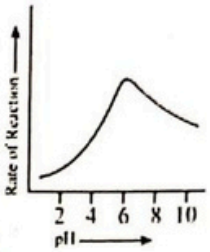
A) 3.00
B) 4.5
C) 2.00
D) 6.00

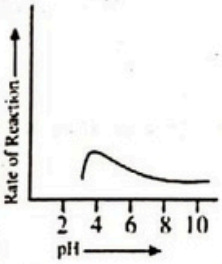
Q.28 Which one of the following is the optimum pH of pancreatic lipase enzyme? (2013, 2014)

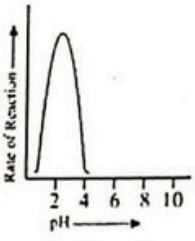
A) 7.60
B) 8.00
C) 9.00
D) 9.70

Q.29 Which one of the following graphs shows how the rate of reaction of pepsin is affected by pH? (2016)

A)


C)


B)


D)


Q.30 The temperature that promotes the maximum activity of enzyme is referred as _____: (2018)

A) Fixed temperature
B) Optimum temperature
C) Controlled temperature
D) Active temperature

Q.31 : Most enzymes have an optimum temperature of around: (2020)

A) 30°C
B) 40°C
C) 50°C
D) 20°C

Inhibitors:

Q.32 _____ forms weak linkages with enzymes and their effect can be neutralized completely or partly by an increase in the concentration of the substrate. (2010)

A) Only competitive Inhibitors
B) Reversible inhibitors
C) Irreversible inhibitors
D) Both reversible and irreversible inhibitors

Q.33 The type of inhibition in which inhibitor has no structural similarity to substrate and combines with enzyme at other than the active site is called: (2012)

A) Irreversible inhibition
B) Cementation inhibition
C) Non-competitive and reversible inhibition
D) Reversible inhibition

Q.34 The inhibitors that bind tightly and permanently to enzymes and destroy their globular structure as catalytic activity are: (2012)

A) Reversible inhibitors
B) Irreversible inhibitors
C) Competitive inhibiters
D) Non-competitive inhibitors

Q.35 Enzyme succinate dehydrogenase converts succinate into: (2012)

A) Malate
B) Malonic acid
C) Citrate
D) Fumarate

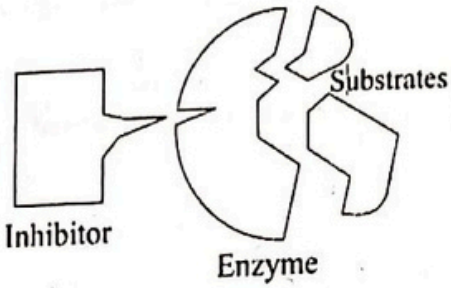
Q.36 The competitive inhibitors have structural similarity with: (2014)

A) Active site
B) Binding site
C) Substrate
D) Co-enzyme

Q.37 Which one of the following is an example of competitive inhibitor? (2015)

A) Glucose
B) Fumarate
C) Succinic acid
D) Melonate

Q.38 This figure represents _____ inhibitor. (2016)



A) Non-competitive
B) Competitive
C) Irreversible
D) Isosteric

Q.39 Which of the following type of inhibitor can be neutralize by adding more substrate into reaction: (2017-Retake)

A) Irreversible inhibitor
B) Reversible inhibitor
C) Irreversible non-competitive
D) Irreversible competitive

Q.40 If molecule can bind to another site of the enzyme rather than the true active site, it is referred as _____: (2018)

A) Non-competitive inhibitors
B) Allosteric inhibitors
C) Competitive inhibitors
D) Irreversible inhibitors

Q.41 What is common in both Competitive and Non-Competitive Inhibition? (2019)

A) Irreversible inhibition
B) Feedback inhibition
C) Reversible inhibition
D) Non-Reversible inhibition

Q.42 A student of chemical engineering mistakenly engulfed the toxic compound "A" which was a potent inhibitor of certain enzyme. He was immediately brought to hospital where Dr. Injected intravenously substrate "B" to minimize the toxic effect of compound A. His life was saved from serious damages. The treatment method shows that compound A was a inhibitors. (2019)

A) Temperature sensitive
B) Competitive reversible
C) Irreversible
D) Non-competitive reversible

ANSWER KEY

1.	C	7.	B	13.	C	19.	D	25.	D	31.	B	37.	D
2.	D	8.	D	14.	B	20.	A	26.	B	32.	A	38.	A
3.	B	9.	D	15.	C	21.	C	27.	C	33.	C	39.	B
4.	C	10.	B	16.	D	22.	A	28.	C	34.	B	40.	A
5.	B	11.	B	17.	B	23.	A	29.	D	35.	D	41.	C
6.	D	12.	D	18.	B	24.	C	30.	B	36.	C	42.	B

PAST PAPER MCQs – 2021

Introduction/Characteristics of Enzymes:

Q.1 The reaction will proceed faster if the activation energy is?
A. High
B. Low
C. Remains same
D. None of these

Q.2 The energy required to start a reaction is called?
A. Startup energy
B. Initial energy
C. Point energy
D. Activation energy

Q.3 An enzyme which requires a biological change in order to become active is called?
A. Transferase
B. Zymogen
C. Hydrogenase
D. Trypsin

Q.4 An enzyme without its cofactor is called:
A. Coenzyme
B. Apoenzyme
C. Holoenzyme
D. Proenzyme

Q.5 If the non-protein part of enzyme is covalently bonded to the enzyme it is known as?
A. Coenzyme
B. Activator
C. Cofactor
D. Prosthetic group

Q.6 Small organic, non-protein part that helps in enzyme reactions:
A. Co-factor
B. Catalyst
C. Activator
D. Prosthetic group

Q.7 An activated enzyme made up of a polypeptide with its cofactor is:
A. Substrate
B. Holoenzyme
C. Coenzyme
D. Apoenzyme

Q.8 Nicotinamide adenine dinucleotide is an example of:
A. Coenzyme
B. Holoenzyme
C. Cofactor
D. Apoenzyme

Q.9 Co-enzyme require:
A. Vitamins
B. Proteins
C. Fats
D. Carbohydrate

Q.10 Which of the following form weak linkage with enzyme?
A. Co-factor
B. Activator
C. Co-enzyme
D. Both B and C

Q.11 Co-factors are divided into groups:
A. 2
B. 3
C. 4
D. 4

Q.12 The substrate binds to specific region of enzyme called?
A. Key
B. Active site
C. Hyperactive site
D. None of these

Q.13 All enzymes are:
A. Globular proteins
B. Fibrous proteins
C. Glycoproteins
D. Lipoproteins

Q.14 What does the active site of the enzyme determine?
A. Looks like a lump projection from the surface of an enzyme
B. Forms no chemical bond with substrate
C. Never changes
D. Determines by its structure the specificity of an enzyme

Q.15 Enzymes showing substrate specificity are specific to how many substrates?
A. 1
B. 3
C. 2
D. 4

Q.16 Which term is used to refer to an inactive enzyme precursor?
A. Apoenzyme B. Null enzyme
C. Zymogen D. Inhibitor

Q.17 Catalysts that increase the rate of biological chemical reaction are called:
A. Proteins B. Vitamins
C. Enzymes D. Minerals

Q.18 Which of the following best describes a coenzyme?
A. Covalently bonded non-protein part of an enzyme
B. Cofactor consists of metal ions
C. Loosely bonded non-protein part of an enzyme
D. Both A and B

Q.19 Which statement about enzyme is incorrect?
A. Some of them consist solely of protein with no non protein part
B. They catalyze a chemical reaction without being utilized
C. They without their cofactor are called apoenzyme
D. All enzymes are fibrous proteins

Q.20 Active form of an enzyme:
A. Coenzyme B. Apoenzyme
C. Holoenzyme D. Proenzyme

Q.21 A cofactor made of inorganic ion which is detachable is called?
A. Prosthetic group B. Coenzyme
C. Activator D. Cofactor

Q.22 Enzymes are globular proteins because:
A. They have a primary structure B. They have a secondary structure
C. They have a tertiary structure D. All of the above

Q.23 A small organic, non-protein molecule that carries chemical groups between enzymes is:
A. Cofactor B. Catalyst
C. Substrate D. Coenzyme

Q.24 Biological molecules which catalyze a biochemical reaction and remain unchanged after completion of reaction are called?
A. Cofactor B. Coenzymes
C. Activator D. Enzymes

Q.25 Enzymes bind with chemical reactant known as:
A. Product B. Reactant
C. Substrate D. All of these

Q.26 Which of the following vitamin acts as a coenzyme
A. Vitamin b_6 B. Vitamin b_3
C. Vitamin b_{12} D. All of these

Q.27 If the non-protein part of enzyme is covalently bonded to the enzyme it is known as?
A. Coenzyme B. Prosthetic group
C. Cofactor D. Activator

Q.28 Enzyme reacts with substrate to form:
A. Product B. Active site
C. Binding site D. Catalytic site

Q.29 Enzymes are _____ in nature:
A. Carbohydrates B. Lipids
C. Nucleic acids D. Proteins

Q.30 Which type of bond are never formed when substrate fits into active site of enzyme?
A. Hydrogen bonds
B. Ionic interactions
C. Covalent linkages
D. Hydrophobic interactions

Q.31 The mechanism of enzyme activation is referred to as:
A. Activation energy
B. Catalysis
C. Enzyme specificity
D. Denaturation

Q.32 The specificity of enzyme structure depends upon:
A. Active site
B. Allosteric site
C. Globe shape
D. All of these

Q.33 Catalytic activity takes place at:
A. Active site
B. Allosteric site
C. Regulatory site
D. All of these

Q.34 Which statement about active site is not true?
A. Active site is of spherical shape
B. Active site is nonspecific
C. Active site contains few amino acids
D. Active site converts substrate into product

Q.35 Type of bond present between enzyme and prosthetic group:
A. Hydrogen
B. Covalent
C. Ionic
D. Coordinate covalent

Q.36 Which one forms the raw material for coenzymes?
A. Vitamins
B. Carbohydrates
C. Lipids
D. Proteins

Mechanism of action of Enzymes:

Q.37 The lock and key model of enzyme action was proposed by:
A. Louis Pasteur
B. Emil Fischer
C. Daniel Koshland
D. Urey Miller

Q.38 The complex that forms when a substrate binds to enzyme is called:
A. Enzyme-substrate complex
B. Enzyme complex
C. Substrate complex
D. Structural complex

Q.39 Enzymes do not affect:
A. Substrate concentration
B. Product concentration
C. Both A and B
D. None

Q.40 Who proposed lock and key model of enzyme activity?
A. Emil Fischer
B. Daniel Koshland
C. Fredrick Sanger
D. James Watson

Q.41 In the lock and key model of enzyme activity, the substrate acts as the:
A. Key
B. Lock
C. Both A and B
D. None of the above

Q.42 Enzymes work by which of the following?
A. Increasing the activation energy
B. Reducing the activation energy
C. Making exergonic reactions endergonic
D. Making endergonic reactions exergonic

Q.43 How many models are present for enzyme-substrate complex or reaction?
A. 3
B. 2
C. 4
D. 5

Q.44 Which statement is incorrect about Lock and Key Model?
A. Specific enzyme can transform only a specific substrate
B. Active site of an enzyme is a non-flexible structure
C. Active site does not change before during or even after the reaction
D. It explains the mechanism of every chemical reaction

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Q.45 Chemical composition of peptidyl transferase is
A. Nucleic Acid B. DNA
C. Protein D. RNA

Q.46 Koshland in 1959 proposed the modified form of which of the following?
A. Unit membrane model B. Fluid mosaic model
C. Reflective index model D. Lock and key model

Q.47 Induced fit model was introduced by Koshland in which of the following year?
A. 1960 B. 1961
C. 1959 D. 1966

Q.48 According to Lock and key model, active site is_____:
A. Flexible B. Rigid
C. Changeable D. All

Q.49 Which of the following is false about concerning enzymes?
A. Substrates must bind the enzyme's active site in order to initiate its effects
B. Enzymes increase both the forward rate and reverse rate of a reaction
C. Enzymes are not destroyed in a reaction and can be used in the same reaction countless times
D. Enzymes increase the amount of product created in a reaction

Q.50 Number of substrate molecules converted into product by one molecule of enzyme active site per unit time is called?
A. Turnover number B. Substrate number
C. Reaction number D. None

Q.51 According to the induced fit model, what happens when an enzyme-substrate complex is formed?
A. The contact between the substrate and the enzyme causes a change in the shape of the active site
B. The shape of the substrate and the shape of the active site is complementary to each other
C. The substrate fits into the active site and forms bonds with the amino acids at the active site
D. All of these

Q.52 Enzymes are _____
A. Globular B. Fibrous
C. water soluble D. A and C

Q.53 While bound to the active site, the substrate is converted into which of the following?
A. Complex B. Substrate of high energy
C. Product of reaction D. Both A and B

Q.54 The primary function of cofactors is to?
A. Assist in enzyme synthesis B. Assist in enzyme inhibition
C. Assist in enzyme activity D. Both a and b

Q.55 In enzyme catalytic reaction the substrate is first converted to a high energy state called?
A. Transition state B. High energy state
C. Activation state D. Breaking point

Q.56 Allosteric enzymes consist of multiple:
A. Inhibitors B. Polypeptide chains
C. Active sites D. Temperature ranges

Q.57 Functions of enzymes include all of the following except:
A. Lessening the time required for a reaction to take place
B. Shifting substrates into more favorable positions in the active site
C. Decreasing the activation energy of a reaction
D. All of these

Factors Effecting rate of Enzyme Action

Q.58 Upon increasing the temperature above optimum, the shape of the enzyme's active site?
A. Remains same
B. Changes
C. Adopts a geometric conformation
D. Denatures

Q.59 The optimum pH for enzyme arginase is which of the following?
A. 9
B. 9.3
C. 9.7
D. 10

Q.60 The optimum pH for the functioning of the enzyme pepsin is?
A. 2
B. 3
C. 4
D. 5

Q.61 If we add more substrate to already occurring enzymatic reaction and it has no effect on the rate of reaction, the process is called?
A. Denaturing
B. Saturation
C. Composition
D. Inhibition

Q.62 pH of salivary amylase is:
A. 6.8
B. 7.60
C. 2.00
D. 5.50

Q.63 It works in acidic medium:
A. Arginase
B. Pancreatic lipase
C. Catalase
D. Enterokinase

Q.64 Extreme change in pH results in which of the following?
A. Change in ionization of amino acids at the active site of the enzyme
B. Change in the ionization of the substrate
C. Increase in the reaction rate
D. Denaturation of the enzyme

Q.65 What is meant by optimum temperature of an enzyme?
A. The temperature at which the primary structure of an enzyme remains intact
B. The temperature at which an enzyme makes the maximum amount of product
C. The temperature at which an enzyme may be more affected by an inhibitor
D. The temperature at which an enzyme makes the least amount of product

Q.66 Rate of reaction is double for rise of every _____.
A. 20 °C
B. 10 °C
C. 30 °C
D. 20 °C

Q.67 Which of the following strategies of enzymatic inhibition is used by noncompetitive inhibitors?
A. Bind to substrate so that it cannot bind to the active site
B. Target the enzyme for destruction using a protease
C. Bind to the active site and prevent substrate from binding
D. Bind to an allosteric site to cause a conformational shift in the enzyme

Q.68 If more substrate to an already occurring enzymatic reaction is added more enzyme activity is seen because?
A. There is probably more substrate present than there is enzyme
B. There is probably more product present than either substrate or enzyme
C. The enzyme substrate complex is probably failing to from during the reaction
D. There is probably more enzyme available than there is substrate

Q.69 The optimum pH for the functioning of pancreatic lipase is?
A. 9
B. 8
C. 7
D. 6

Q.70 A researcher has designed a new type of inhibitor that binds at the active site of an enzyme. What type of inhibition does this molecule display?
A. Uncompetitive inhibition
B. Competitive inhibition
C. Noncompetitive inhibition
D. All of these

Q.71 Which of the following changes could lead to loss of enzymatic function?
A. Decrease in activation energy of the reaction
B. Increase in enzyme concentration
C. Change in overall enthalpy of the reaction
D. Increase in pH of the reaction

Q.72 Which statement correctly describes why enzyme activity increases with increased enzyme concentration?
A. Collisions between enzyme and substrate molecules increase because of increased kinetic energy
B. Collisions between enzyme and substrate molecules increase because of increased heat energy
C. Collisions between enzyme and substrate molecules increase because of more active sites are available
D. Collisions between enzyme and substrate molecules increase because more substrate molecules are available

Q.73 The rate of reaction of enzyme directly depends upon which of the following?
A. Low temperature
B. Amount of enzyme present at a specific time at unlimited substrate concentration
C. Maximum pH level
D. Nature of substrate

Q.74 The enzyme-substrate complex is formed in which part of the enzyme molecule?
A. Binding site
B. Allosteric site
C. Catalytic site
D. None of the above

Q.75 Which step, causes activation of catalytic site of an enzyme?
A. Change in pH of the surroundings
B. Change in the charge of the active site
C. Change in temperature
D. Formation of enzyme substrate complex

Q.76 If the concentration of enzyme is kept constant and amount of substrate is increased a point is reached where increase in substrates concentration does not affect the reaction rate because of?
A. Enzymes get denatured at higher substrate cone
B. Rate of reaction is indirectly proportional to substrate concentration at this point
C. All the active sites on enzyme molecule are occupied
D. All of these

Q.77 What is the optimum temperature for working of enzymes in human body?
A. 32°C
B. 40°C
C. 37°C
D. 35°C

Q.78 In acidic medium, amino acids carry positive charge and acts as:
A. Acid
B. Base
C. Neutral
D. None of these

Q.79 If we increase the concentration of substrate then increase in the enzyme activity is due to which of the following?
A. There is sufficient concentration of enzyme
B. There is sufficient concentration of substrate
C. Active sites are not working properly
D. None of these

Q.80 When we increase the pH then, enzyme reactivity is retarded due to:
A. Tertiary structure of enzyme is destroyed
B. Primary structure is destroyed
C. Active sites get blocked
D. Allosteric modulation

Q.81 At low enzyme concentration, optimum pH and temperature, rate of reaction can be increased by:
A. Increased substrate concentration
B. Increasing pH
C. Increasing temperature
D. Increasing enzyme concentration

Q.82 Detachable cofactor is known as _____ if organic:
A. Coenzyme
B. Cofactor
C. Activator
D. Prosthetic group

Enzyme Inhibition:

Q.83 The effect of competitive inhibitor on enzyme activity is such that it affects which of the following?
A. Increases enzyme activity
B. Doesn't change enzyme activity
C. Decreases enzyme activity
D. None of these

Q.84 What is the characteristic of a non-competitive inhibitor?
A. Always binds at the active site
B. Adding more substrate reduces the effects of inhibition
C. Sometimes binds at the active site
D. Adding more substrate does not reduce the effects of inhibition

Q.85 Reversible inhibitors form weak linkages with which of the following?
A. Enzyme
B. Reactant
C. Product
D. Substrate

Q.86 Inhibitors which block the enzyme by forming weak bond are called:
A. Competitive inhibitors
B. Non-competitive inhibitors
C. Irreversible inhibitors
D. Both A and B

Q.87 ATP is inhibitor of
A. Decarboxylase
B. Kinase
C. Both of these
D. None of these

Q.88 The end product of an enzymatic reaction inhibits formation of product in an earlier step. This type of enzymatic regulation is known as?
A. Allosteric regulation
B. Negative regulation
C. Metabolic pathway loop
D. Feedback inhibition

Q.89 In uncompetitive inhibition, the inhibitor binds with:
A. Enzyme
B. Substrate
C. ES-complex
D. All of these

Q.90 In mixed inhibition, the allosteric affects:
A. Shape of substrate
B. Shape of inhibitor
C. Shape of enzyme
D. None of these

Q.91 The non-substrate molecules that bind to the allosteric sites are called?
A. Inhibitors
B. Reactants
C. Allosteric substrates
D. Allosteric modulators

Q.92 A chemical substance which can react (in place of substrate) with the enzyme but is not transformed into product/s and thus blocks the active site temporarily or permanently is called?
A. Coenzyme
B. Blocker
C. Inhibitor
D. Cofactor

Q.93 Malonic acid is an example of which type of inhibitors?
A. Irreversible
B. Reversible inhibitor
C. Non-competitive inhibitor
D. Competitive inhibitor

Q.94 In non-competitive inhibition, the quantity which remains same as the reaction proceed is?
A. Vmax
B. Km
C. Ko
D. Vo

Q.95 A substance which binds at the active site of the enzyme but does not result in the formation of the products is called:
A. Irreversible inhibitor
B. Reversible inhibitor
C. Non-competitive inhibitor
D. Competitive inhibitor

Q.96 An inhibitor is added, disrupting the function of a particular enzyme. The experimenter adds more substrate, and enzyme function increases again. These results indicate the involvement of what type of inhibitor?
A. Non-competitive
B. Uncompetitive
C. Allosteric
D. Competitive

Q.97 What is meant by enzyme denaturation?
A. Peptide bonds between amino acid residues are broken
B. The enzyme loses its secondary structure
C. The enzyme loses its tertiary structure
D. All of the above

Q.98 Magnesium ion acts as _____
A. Cofactor
B. Coenzyme
C. Activator
D. Prosthetic group

Q.99 An enzyme with its cofactor removed is called:
A. Apoenzyme
B. Proenzyme
C. Holoenzyme
D. Zymogen

Q.100 Which of the following best describes competitive inhibitors?
A. Do occupy active site
B. Destroy the structure of enzyme
C. Resemble structurally with substrate
D. None of the above

Q.101 _____ is a competitive inhibitor of succinic dehydrogenase.
A. Malonic acid
B. Malic acid
C. Fumaric acid
D. Acetic acid

Q.102 In competitive inhibition, a thing that binds to enzyme active site are?
A. Substrate
B. Catalyst
C. Inhibitors
D. Both A and B

Q.103 Feedback inhibition in most metabolic pathways involves which type of enzymes?
A. Holoenzymes
B. Allosteric enzymes
C. Coenzymes
D. Apoenzyme

Q.104 These form weak linkages with enzymes:
A. Irreversible inhibitors
B. Reversible inhibitors
C. Both A and B
D. None

Q.105 In uncompetitive inhibition, the inhibitor binds with:
A. Enzyme
B. Substrate
C. ES complex
D. All of these

Q.106 An allosteric enzyme will have:
A. Many active sites
B. Many substrates
C. Many binding sites
D. No binding site

Q.107 In mixed inhibition, the inhibitor binds to:
A. Allosteric site
B. Active site
C. Binds to enzyme substrate complex
D. All of these

Q.108 Enzymes _____ activation
A. Decrease
B. Increase
C. Does not affect
D. None

Q.109 Structure of enzyme is altered by:
A. Competitive inhibitor
B. Non- competitive inhibitor
C. Irreversible inhibitor
D. Reversible inhibitor

Q.110 Most of enzymes are part of _____
A. Cytoplasmic soup
B. Orgenelles
C. Plasma membrane
D. None

Q.111 Which of the following is prosthetic group
A. Magnesium ion
B. NAD^+
C. FAD
D. Haem

Out of the Syllabus:

Q.112 This enzyme is used to cut DNA molecule in recombinant DNA technology
A. Ligase
B. Phosphatase
C. Ribonuclease
D. Restriction enzyme

Q.113 Restriction endonucleases found in
A. Viruses
B. Bacteria
C. Eukaryotes
D. All of these

Q.114 Antibodies can be digested by using which of the following types of enzymes?
A. Lipase
B. Protease
C. Amylase
D. Polymerase

Q.115 Ligases help in which of the following reactions?
A. Splitting of two molecules
B. Oxidation of molecules
C. Joining of molecules
D. Both A and B

Q.116 What type of enzymes is involved in biological oxidation?
A. Kinases
B. Dehydrogenases
C. Polymerases
D. Phosphatases

Q.117 Which of the following is not a class of enzyme?
A. Ligase
B. Isomerase
C. Hydrolase
D. Pyrimidine complex

Q.118 Enzymes which are involved in transfer of electrons are known as:
A. Oxidases
B. Dehydrogenase
C. Hydrolyses
D. Both A and B

Q.119 The following enzymes are regulated by calcium ions:
A. DNA polymerase
B. Nitric oxide synthetase
C. Adenylate cyclase
D. Phosphoprotein phosphatase

Q.120 Enzyme which helps in changing the shape of molecule is called:
A. Ligases
B. Dehydrogenases
C. Hydrolyses
D. Isomerases

ANSWER KEY

1	B	21	C	41	B	61	B	81	D	101	A
2	D	22	C	42	B	62	A	82	A	102	C
3	B	23	D	43	B	63	D	83	C	103	B
4	B	24	D	44	C	64	D	84	D	104	B
5	D	25	C	45	D	65	B	85	A	105	C
6	A	26	D	46	D	66	B	86	A	106	C
7	B	27	B	47	C	67	D	87	B	107	D
8	A	28	A	48	B	68	D	88	D	108	A
9	A	29	D	49	B	69	A	89	A	109	B
10	D	30	D	50	A	70	B	90	C	110	B
11	B	31	B	51	A	71	D	91	A	111	D
12	B	32	A	52	D	72	C	92	C	112	D
13	A	33	A	53	C	73	B	93	D	113	B
14	D	34	B	54	C	74	A	94	B	114	B
15	A	35	B	55	A	75	D	95	D	115	C
16	C	36	A	56	B	76	C	96	D	116	B
17	C	37	B	57	D	77	C	97	C	117	D
18	C	38	A	58	D	78	B	98	C	118	D
19	D	39	D	59	C	79	A	99	A	119	B
20	C	40	A	60	A	80	A	100	C	120	D

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UNIT 8

PRACTICE EXERCISE

EVOLUTION

1. **Origin of species was written by:**
   A) Mendel
   B) Darwin
   C) Wallace
   D) Lamarck

2. **Use and disuse of organs, supports the theory of:**
   A) Lamarck
   B) Cuvier
   C) Darwin
   D) Watson

3. **Penguin is a bird that lost the use of its wings by not flying. Such statement would express the views of:**
   A) Darwin
   B) Lamarck
   C) Wallace
   D) Huxley

4. **Darwin's theory, as presented in the Origin of Species, is mainly concerned with:**
   A) How new species arise
   C) How adaptations are inherited
   C) The origin of life
   D) How extinctions occur

5. **_____ refers to the processes that have transformed life on earth from its earliest forms to the vast diversity that we observe today:**
   A) Evolution
   B) Random mating
   C) Catastrophism
   D) New-Darwinism

6. **The first living being originated about ..... years ago**
   A) 3.5 million
   B) 420 million
   C) 1.5 billion
   D) 3.5 billion

7. **This is most popular example of Lamarck**
   A) Primrose
   B) African Giraffe
   C) Snakes
   D) Both B) and C)

8. **An organism that can synthesize all its required organic components from CO_2 using energy from the oxidation process is a:**
   A) Photoautotroph
   B) Chemoautotroph
   C) Photoheterotroph
   D) Chemoheterotroph

9. **First living being originated on earth in**
   A) Water
   B) Dry Place
   C) Cold water
   D) Hot Water

10. **The idea of use and disuse of organs was given by**
    A) Lamarck
    B) Darwin
    C) Morgan
    D) Hugo de Vries

11. **Which of the following explains origin of life on earth**
    A) Endosymbiont Hypothesis
    B) Membrane invagination Hypothesis
    C) Vent Hypothesis
    D) Theory of natural selection

12. **According to evolutionists, all are present in early atmosphere except**
    A) Inorganic molecules
    B) CO_2
    C) Water Vapours
    D) O_2

13. **Who stated this theory – organ in use will develop and if not used will weaken to turn vestigial:**
    A) Mendel
    B) Darwin
    C) De Vries
    D) Lamarck

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14. **The present giraffe has a long neck as compared to its ancestors. Lamarck believed it could be due to**
A) Natural selection
B) Isolation
C) Inheritance of accquired characters
D) Struggle for survival

15. **Key point of Lamarck view about organic evolution is that every offspring**
A) Is similar to its parents
B) Inherits characters accquired by the parental generation
C) Shows struggle for existence.
D) Repeats phylogeny in its ontogen

16. **Most primitive organism that originated on earth was**
A) Archeobacteria
B) Eukaryotic bacteria
C) Eubacteria
D) Amoeba

17. **Lamarck's theory of evolution is known as**
A) Natural selection
B) Inheritance of acquired characters
C) Survival of the fittest
D) Mutation theory

18. **With respect to nutrition, most primitive organism was**
A) Autotroph
B) Chemoautotroph
C) Heterotroph
D) Absorptive heterotroph

19. **Correct sequence of origin of organisms is**
A) Absorptive Heterotroph 》 Chemoautotroph 》 Photoautotroph
B) Chemoautotroph 》 Photoautotroph 》 Absorptive Heterotroph
C) Photoautotroph 》 Absorptive Heterotroph 》 Chemoautotroph
D) Absorptive Heterotroph 》 Photoautotroph 》 Chemoautotroph

20. **Which of the following concept is attributed to Charles Darwin?**
A) Use and disuse of organs is of great importance in evolution.
B) Every cell must come from a pre-existing cell
C) In the struggle for existence, the fittest would survive
D) The gametes will carry only one of a pair of contrasting characters.

21. **Theory of natural selection was proposed by**
A) Lamarck
B) Darwin
C) De Vries
D) Haeckel

22. **Lamarckism cannot explain**
A) Webbed toes in aquatic Birds
B) Weak muscles in the son of a wrestler
C) Long narrow and limbless body of snakes
D) Use of organ

23. **According to Lamarck Neck and fore limbs in African giraffe increased in length as a result of:**
A) Variation in these organs
B) Mutations in these organs
C) Use of organs
D) None of these

24. **The survival of an organism during struggle for existence is not random, but depends on**
A) Its genetic constitution
B) Its ability to acquire characters
C) Its ability to over produce
D) Its ability to over eat

25. **Acquired characteristics are inherited, that is the concept given by**
A) Darwin
B) Watson
C) Mendel
D) Lamarck

26. **According to theory of natural selection, organisms produce**
A) More offspring than supported
B) Less offspring than supported
C) Offspring according to resources available
D) Offspring to create resources

27. **The First photosynthetic organisms used ..... as a source of hydrogen for reducing carbon dioxide to sugar**
A) H_2 C) H_2O
B) H_2S D) CH_4

28. **According to Lamarck, Deterioration of organs is associated with**
A) Natural selection C) Use of organs
B) Descent with modification D) Disuse of organs

29. **In early environment, Accumulation of oxygen in atmosphere is because of**
A) Respiration C) Chemiosmosis
B) Photosynthesis D) Digestion

30. **.....occurs because natural selection gives some alleles a better chance of survival than other**
A) Crossing over C) Artificial selection
B) Deterioration D) Evolution

31. **Over production of offspring leads to .....**
A) Competition for food C) Competition for space
B) Competition for water D) All of these

32. **Evolution operates on**
A) Individual C) Population
B) Species D) Abiotic Components

33. **According to Lamark, Long neck of giraffe is because of use of organs. According to Darwin, long neck of giraffe is because of**
A) Use of organs C) Competition
B) Descent with modification D) DNA

34. **There is no life on moon due to absence of**
A) Temperature C) Light
B) Oxygen D) Water

35. **Most of Darwin's observations about changes in species over time and in different environments took place in and near**
A) North America. C) Africa.
B) South America. D) Asia.

36. **Product of evolution is**
A) Species C) Individual
B) Population D) Community

37. **Darwin's theory of Natural selection is identical to**
A) Lamark C) Linnaeus
B) Lyel D) Wallace

38. **All are examples of disuse of organs except**
A) Snake's feet C) Muscle Atrophy
B) Movement of ear D) Shedding of exoskeleton

39. **Bigger bicep of blacksmith can be inherited according to**
A) Darwin C) Mendel
B) Lamark D) Lyel

40. **How many types of finches were observed by Darwin at Galapagos island**
A) 11 C) 13
B) 12 D) 14

41. **According to Lamarck, which character is heritable**
A) Genetic C) Acquired
B) God gifted D) Beneficial

42. **Phyletic lineage is an example of**
A) Descent with modification
B) Use of organ
C) Overproduction
D) Competition

43. **Antibiotic resistance in bacteria is an example of**
A) Natural selection
B) Use and disuse
C) Artificial selection
D) Specific creation

44. **According to Darwin, which is the fittest organism?**
A) Organism which is very strong
B) Organism which is very aggressive
C) Organism which leaves a large no. of offspring
D) Organism which is very cruel

45. **Darwin's theory does not include:**
A) Evolution through genes
B) Survival of the fittest
C) Natural selection
D) Struggle for existence

46. **Darwin perceived origin of new species and**
A) Fixation
B) Acquired characteristic
C) Adaptation
D) Artificial selection

47. **Explanation of evolution on the basis of population genetics is**
A) Darwinism
B) Mendelism
C) Lamarkism
D) Neo-Darwinism

ANSWER KEY

1	B	11	C	21	B	31	D	41	C
2	A	12	D	22	B	32	C	42	A
3	B	13	D	23	C	33	B	43	A
4	A	14	C	24	A	34	D	44	C
5	A	15	B	25	D	35	B	45	A
6	D	16	A	26	A	36	A	46	C
7	D	17	B	27	B	37	D	47	D
8	B	18	D	28	D	38	D		
9	D	19	A	29	B	39	B		
10	A	20	C	30	D	40	C		

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PAST PAPER MCQs 2008 – 2020

EVOLUTION

Concept of Evolution:

Q.1 : _____ occurs because natural selection give some alleles a better chance of survival than others (2020)

A) Fitness
B) Evolution
C) Crossing over
D) Artificial selection

Q.2 This theory says that "mitochondria and chloroplasts are in fact ancient bacteria which now lie inside the larger cells? (2020)

A) Darwin theory of evolution
B) Lamarcksim
C) Neo-darwnism
D) Endosymbiont theory

Inheritance of Acquired characteristics:

Q.3 Acquired characteristics are inherited, that is the concept given by: (2017-Retake)

A) Lamarck
B) Malthus
C) Cuvier
D) Lyell

Darwinism:

Q.4 The survival of an organism during the struggle for existence is not random, but depends on: (2009)

A) Its genetic constitution
B) Its ability to acquire characters
C) Its ability to over-produce
D) Its ability to over-eat

Q.5 Charles Darwin gave the: (UHS-Model Paper 2011)

A) Theory of special creation.
B) Theory of Natural selection.
C) Inheritance of acquired characters.
D) Cell theory.

Q.6 According to the theory of natural selection, organisms produce: (2019)

A) More offspring than supported
B) Less offspring than supported
C) Offspring according to the resources available
D) Offspring to create resources

Neo Darwinism

NO QUESTION IS YET ASKED THAT FALLS UNDER THIS HEADING

Evidences of Evolution

Q.7 Functionally different and structurally alike organs are called: (2008 & 2017-Retake) OR Organs specialized to perform different functions but structurally alike are: (2018)

A) Analogous
B) Unilogous
C) Homologous
D) Hypologous

Q.8 Evolutionary relationships amongst species are reflected in their: (2009)

A) DNA and proteins
B) RNAs and proteins
C) DNA and gene
D) DNA and RNAs

Q.9 Which of the following proteins is common in man and aerobic bacteria? (2010)

A) Haemoglobin
B) Myoglobin
C) Cytochrome c
D) Pilin

Q.10 The branch of biology that provide evidence through fossil record is called: (UHS-Model Paper 2011)

A) Vestigial structures.
B) Comparative anatomy.
C) Biogeography.
D) Palaeontology.

Q.11 The comparative embryology of all vertebrates shows development of: (2012)
A) Hairs
B) Gill pouches
C) Scales
D) Fins

Q.12 The structures which are reduced during the course of evolution and have no apparent functions are called: (2013)
A) Regenerated organs
B) Saltatory organs
C) Vestigial organs
D) Useless organs

Q.13 From evolutionary point of view, which respiratory protein is common in many organisms? (2015)
A) Cytochrome a
B) Cytochrome b
C) Cytochrome c
D) Cytochrome d

Q.14 Which one of the following is considered as strong evidence of evolution? (2016)
A) Embryology record
B) Molecular record
C) Biochemical record
D) Fossil record

Q.15 Structures found in different species which are believed to have a common evolutionary origin are: (2016)
A) Homologus
B) Analogous
C) Vestigeal
D) Fossilized

Q.16 Process by which unrelated species evolve to functionally resemble each other is called: (2017)
A) Convergent evolution
B) Divergent evolution
C) Co-evolution
D) Parallel evolution

Q.17 Which one of the followings shows evidence of evolution from Molecular Biology? (2017)
A) Development of bronchial arches in vertebrate embryo
B) Distribution of species
C) Comparison of genes and proteins in different species
D) Study of vestigial organs

Q.18 Divergent evolution produces: (2018)
A) Homologous organs
B) Vestigial organs
C) Vital organs
D) Analogous organs

Q.19 The actual or preserved remains of the organisms that lived in the ancient past are called: (2018)
A) Fossils
B) Impression
C) Ancient prints
D) Ancient cast

Q.20 The organs which are similar in function but differ in structure are called: (2020)
A) Analogous organs
B) Convergent evolution
C) Convergent evolution
D) Divergent evolution

Hardy-Weinberg Theorem

Q.21 If all the members of a population are homozygous for the same allele, that allele is said to be: (2009)
A) Random in population's pool
B) Fixed in population's pool
C) Random in a species
D) Fixed in the gene pool

Q.22 One of the factors given below does not effect gene frequency: (UHS-Model Paper 2011)
A) Mutation.
B) Migration.
C) Genetic drift.
D) Food.

Q.23 **Large population size, random mating, no mutation and no emigration or immigration are postulates of:** **(2017)**

A) Hardy-Weinberg equation
B) Mendel's law of independent assortment
C) Mendel's law of segregation
D) Theory presented by Schleiden and Schwann

Q.24 **Change in frequency of alleles at a locus that occurs by chance is called:** **(2017-Retake & 2019)**

A) Mutation
B) Migration
C) Non-random mating
D) Genetic drift

Q.25 **Which of the following factor causes change in gene frequency:** **(2017-Retake)**

A) Meiosis
B) Sexual recombination
C) Mutation
D) Random mating

ANSWER KEY

1.	B	6.	A	11.	B	16.	A	21.	D
2	D	7.	C	12.	C	17.	C	22.	D
3	A	8.	A	13.	C	18.	A	23.	A
4	A	9.	C	14.	B	19.	A	24.	D
5	B	10.	D	15.	A	20.	A	25.	C

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PAST PAPER MCQs – 2021

Concepts of Evolution:

Q.1 The process that has transformed life on earth from its earliest forms to vast diversity is?
A. Mutation
B. Evolution
C. Migration
D. Genetic drift

Q.2 Concept of evolution was first presented by which of the following scientists?
A. Lamarck
B. Aristotle
C. Wallace
D. Darwin

Q.3 Earliest life form on earth is:
A. Virion
B. Viroid
C. Prion
D. None

Q.4 During Aristotle time, it was thought that:
A. Organisms ranged from simple to complex
B. One type of organism give rise to another type of organism
C. Both A and B
D. All living things specially created by nature

Q.5 *Methanopyrus kandleri* is an organism which lives in a hydrogen-carbon dioxide environment, and was first discovered in a hydrothermal vent where temperatures reached 230°F. What sort of organism is this?
A. Protist
B. Cyanobacteria
C. Archaea
D. Bacteria

Q.6 Flagella might have arisen through the ingestion of which of the following?
A. Cyanobacteria
B. Chlamydomonas
C. Paramecium
D. Spirochetes

Q.7 Carolus Linnaeus was believer of which of the following?
A. Special creation
B. Catastrophism
C. Natural selection
D. Inheritance of acquired characters

Q.8 Which of the following is not an example of evidence supporting the endosymbiotic theory?
A. Mitochondria and other plastids multiply by binary fission
B. Mitochondria contain their own DNA, which is a single circular chromosome
C. Mitochondria have their own ribosomes, which are 70s
D. None of these

Q.9 Two populations of the same species over time grow distant from one another. At what point will these two populations be considered different species?
A. When the populations begin to eat different foods
B. When there is a physical barrier, such as a river
C. When the two populations have not been in contact with one another for two hundred years
D. When they are no longer able to interbreed

Q.10 Which scientist does not match his achievements in the following options?
A. Lamarck published his theory of evolution
B. Lyell published principles of geology
C. Malthus published essay on principle of population
D. Cuvier published papers on inheritance

Q.11 The process by which different kinds of living organism are believed to have developed from earlier forms during the history of the earth:
A. Evolution
B. Development
C. Growth
D. None of the above

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Q.12 He explained earth's history by catastrophism:
A. Cuvier B. Lyell
C. Malthus D. Lamarck

Q.13 Eukaryotes evolved by prokaryotes through:
A. Commensalism B. Symbiosis
C. Predation D. All of the above

Q.14 Who wrote an essay on population?
A. Malthus B. Darwin
C. Mendel D. Wallace

Q.15 Lamarck was in-charge of the Natural History Museum in:
A. North America B. Paris
C. England D. Wales

Inheritance of Acquired Characteristics:

Q.16 Which condition can be explained by Lamarckism?
A. How giraffes got their long neck B. How humans lost their tail
C. How humans became bipedal D. All of these

Q.17 Which of the following scientists hypothesized that organisms can pass down acquired traits during their lifetimes?
A. Lamarck B. Linnaeus
C. Darwin D. Mendel

Q.18 Lamarck's ideas on biological evolution contained correct and incorrect notions. Which of his ideas is correct?
A. Acquired traits can be passed on to offspring
B. Living forms become perfect with time
C. Nervous fluids are passed on from generation to generation
D. Evolution is related to changes in adaptation to the environment

Q.19 The idea of inheritance of acquired characteristics was given by:
A. Lamarck B. Darwin
C. Aristotle D. Lyell

Q.20 What are parts of Lamarck's theory of evolution?
A. Individuals lose traits that they don't need
B. Acquired characteristics are heritable
C. Individuals gain characteristics they need
D. All of these

Q.21 Which of the following are important points of Lamarck's theory?
A. Use and disuse of organs B. Inheritance of acquired characters
C. Natural selection D. Both A and B

Q.22 Which scientists gave postulate that giraffes have long necks because they wanted to eat the leaves of tall trees?
A. Watson and Crick B. Lamarck
C. Darwin D. All of these

Q.23 Who hypothesized that organisms evolved through inheritance of acquired characters?
A. Darwin B. Hutton
C. Malthus D. Lamarck

Q.24 Which of the following can be described by Lamarckism?
A. How giraffe got their long neck? B. How humans lost their tails?
C. How humans became bipedal? D. All of these

Q.25 Use and disuse organ theory was proposed by:
A. Lamarck B. Darwin
C. Wallace D. TH Morgan

Darwinism:

Q.26 Natural selection can amplify or diminish variations that are?
A. Heritable B. Non heritable
C. Both a and b D. Acquired

Q.27 Who developed a theory of natural selection essentially identical to Darwin's?
A. Hardy-Weinberg B. Malthus
C. Lamarck D. Alfred Wallace

Q.28 Darwin was greatly influenced by:
A. Essay on population by Malthus B. Lamarck's theory
C. L-Miller's evidence for origin of life D. Mendel's paper on inheritance

Q.29 Darwin's theory mainly focuses on:
A. Origin of life B. How organs extinct
C. How new species arise D. How organisms form

Q.30 Which theory tells about adaptation:
A. Darwin's natural selection B. Lamarck's theory
C. Hardy D. Weinberg's principle

Q.31 Island present near South American cost line:
A. Maldives B. Madagascar
C. Galapagos D. New Zealand

Q.32 Darwin returned to great Britain in:
A. 1831 B. 1855
C. 1836 D. 1841

Q.33 Natural selection was the silent feature of which statement:
A. Lamarck B. Darwin
C. Aristotle D. Wallace

Q.34 Darwin collected how many types of finches?
A. 12 B. 13
C. 14 D. 15

Darwin's theory Evolution:

Q.35 Darwin's Theory of evolution by natural selection is based on all of the following postulates except:
A. Some individuals are more successful in surviving and reproduction than others
B. Individuals within a population are variable
C. The survival and reproduction of individuals is not random
D. The survival and reproduction of individuals is random

Q.36 Darwin described his theory of natural selection as which of the following?
A. Punctuated equilibrium B. Survival of the fittest
C. Inheritance of acquired characteristics D. Descent with modification

Q.37 Who developed a theory of natural selection essentially identical to Darwin's?
A. Hardy-Weinberg B. Malthus
C. Lamarck D. Allred Wallace

Q.38 Darwin gave his theory of evolution in:
A. 1859 B. 1822
C. 1884 D. 1913

Q.39 Galapagos finches indicated:
A. Seasonal migration
B. Immigration
C. Allopatric speciation
D. Parapatric speciation

Q.40 During which of the following levels of biological organization can natural selection occur?
A. Gene
B. Individual
C. Group
D. All

Q.41 Which of the following would best determine the fitness of an organism?
A. The number of offspring produced by the organism. *X*
B. How much food the organism consumes in its lifetime
C. How large the organism grows
D. The number of offspring produced by the organism's own offspring

Q.42 Which organism would be considered the most biologically fit?
A. Lives 45 years and produces 3 offspring
B. Lives 70 years and produces no offspring
C. Lives 27 years and produces 1 offspring
D. Lives 36 years and produces 6 offspring

Q.43 The book name in which Darwin published the theory of evolution:
A. The origin of species by natural selection
B. The origin of species
C. The evolution of species
D. The evolution of species by means of natural selection

Q.44 What is the definition of "fitness" in terms of evolution?
A. The organism's ability to attain resources while in competition with other organisms of its species
B. The organism's ability to attract the most mates
C. The organism's health
D. The ability of an organism to contribute its genes to future generations

Q.45 The ability to pass on genes is defined as which of the following?
A. Differential reproduction
B. Fitness
C. Evolution
D. Natural selection

Q.46 Darwin' theory was based on:
A. Mutation
B. Migration
C. Natural selection
D. None of the above

Q.47 The beats definition of natural selection is:
A. Survival of the fittest
B. Most fit individuals adapt to their environment better than less fit individuals
C. Those who eat better are healthier and love longer are most fit within a population
D. Preservation of traits leads to increase survival and reproduction

Q.48 Darwin's theory can be named as:
A. Classical theory
B. Advanced theory
C. Neo-Darwinism
D. Theory of special creation

Q.49 Specifics of natural selection are:
A. Regional and permanent
B. Local and constant
C. Regional and temporary
D. Both A and B

Neo-Darwinism's:

Q.50 Neo-Darwinism has integrated discoveries and ideas from:
A. Genetics
B. Paleontology
C. Taxonomy
D. All of these

Q.51 Neo-Darwinism came on to surface during:
A. 1930's B. 1940's
C. 1920's D. 1950's

Evidence of evolution:

Q.52 Homology means:
A. Similarity in characteristics resulting from common ancestors
B. Similarity in function from acquired characters
C. Study of similar organs but with different functions
D. Study of similar organs but with different functions

Q.53 If two species have similar proteins and genes it means:
A. They have same organs. B. They have similar appearance
C. They have common ancestors D. All of above

Q.54 Which of the following is not an evidence for evolution?
A. Fossil record B. Common ancestor organisms
C. Vestigial structures D. None of these

Q.55 Most of the fossils are found in which of the following?
A. Metamorphic rocks B. Soil
C. Volcanic mountains D. Sedimentary rocks

Q.56 Structures that were once functional in the past but no longer serve a purpose due to evolutionary adaptations and physiological changes are referred to as?
A. Vestigial B. Analogous structures
C. Homologous structures D. None of these

Q.57 Which type of evolution is represented by analogous organs?
A. Divergent evolution B. Straight evolution
C. Zig-zag evolution D. Convergent evolution

Q.58 It is not a vestigial organ in humans:
A. Appendix B. Coccyx
C. Both A and B D. None of the above

Q.59 Homologous organs show similarity in:
A. Shape B. Origin
C. Function D. Size

Q.60 Which of the following is ancient fossil fuel?
A. Fish B. Reptile
C. Bird D. Amphibian

Q.61 Embryo of a turtle, mouse and human show:
A. Comparative embryology B. Distinct differences
C. Vestigial organs D. Analogous structure

Q.62 The structures of the front flipper of a whale and the forearm of a wolf have similar bone structure and derive from a common ancestor. This is an example of which of the following?
A. Convergent evolution B. Analogous structures
C. Homologous structures D. Bottleneck effect

Q.63 Example of convergent evolution is:
A. Forelimbs of man and bat B. Wings of birds and insects
C. Darwin's finches D. All

Q.64 Study of fossils is called:
A. Mammalogy B. Palaeontology
C. Herpetology D. Ornithology

Q.65 Which of the following organs serve no apparent purpose?
A. Non vestigial organs
B. Homologous organs
C. Analogous organs
D. Vestigial organs

Q.66 The wings of a bird and the wings of a beetle are considered?
A. Taxonomic
B. Phylogenetic
C. Homologous
D. Analogous

Q.67 Which statement is incorrect?
A. Homologous organs are functionally different but structurally alike
B. Examples of homologous structures are of cat, flipper of whale
C. Examples of analogous structures are wings of bats, birds and insects
D. Analogous organs are functionally different but structurally alike

Q.68 In humans gill pouches have evolved into which of the following organs?
A. Nose
B. Ear
C. Pharynx
D. Eustachian tubes

Q.69 Which of the following is not an evidence for evolution?
A. Fossil record
B. Vestigial structures
C. Common ancestor organisms
D. None of these

Out of the Syllabus:

Q.70 Mating with non-relatives is known as?
A. Inbreeding
B. Outbreeding
C. Breeding
D. None of these

Q.71 A population of birds encounters a dramatic event that results in a severe decrease in population size. As a result of the newly-decreased population, what type of genetic drift does this population now exhibit?
A. Artificial selection
B. Founder effect
C. Bottleneck effect
D. both a and b

Q.72 When resources get scarce, the population growth?
A. Becomes fast
B. Slows down
C. Remains same
D. None of these

Q.73 Which statement best describes the Hardy-Weinberg principle?
A. Recessive alleles eventually disappear in large populations
B. Expected frequencies of alleles are impossible to predict mathematically
C. Dominant alleles become more prevalent in laarge populations
D. When there is a large population, the mechanism of inheritance does not change allele frequencies.

Q.74 Adaptation of traits to better fill a niche is known as which of the following?
A. Polymorphism
B. Gene linkage
C. Specialization
D. Replication

Q.75 Which of the following may cause loss of alleles from a gene pool?
A. Interbreeding
B. Mutation
C. Migration
D. None

Q.76 As long as two species occupy different niches, there is:
A. Competition
B. No competition
C. Gene linkage
D. Polymorphism

Q.77 Two species can avoid competition and better use the environment's resources by occupying different?
A. Adaptations
B. Polymorphism
C. Niches
D. Specialization

Q.78 According to Hardy-Weinberg theorem, frequencies of alleles and genotypes in a population's gene pool remain?

A. Mobile in gene pool
B. Constant
C. Stationary in gene pool
D. Constant unless acted upon by agents other than sexual recombination

Q.79 Bottleneck increases the effect of which of the following:

A. Genetic linkage
B. Genetic expression
C. Genetic diversity
D. Gene pool

Q.80 Which of the following conditions is not required to be true for a population in Hardy-Weinberg equilibrium?

A. Random mutations
B. Large population
C. No natural selection
D. Random mating

Q.81 Population growth is checked by which of the following?

A. No competition
B. No polymorphism
C. Polymorphism
D. Competition

Q.82 Primordial soup is a set of hypothetical conditions on ancient earth first proposed by?

A. Dmitri Ivanovsky
B. Dmitry Anuchin
C. Nikolay Shatsky
D. Alexander Oparin

Q.83 The ultimate source of all the change is?

A. Migration
B. Mutation
C. Genetic drift
D. Selection

Q.84 The frequency of allele if it is evolutionary successful is?

A. Increased
B. Decreased
C. No change
D. None of these

Q.85 When two or more clearly different phenotypes exists in same population of species, the phenomenon is called?

A. Replication
B. Polymorphism
C. Gene linkage
D. Gene expression

Q.86 Mating between relatives is called which of the following?

A. Inbreeding
B. Ex breeding
C. Breeding
D. Outbreeding

Q.87 The selection for a trait on one extreme is called which of the following?

A. Natural selection
B. Stabilizing selection
C. Directional selection
D. All of these

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ANSWER KEY

1	B	12	A	23	D	34	C	45	B	56	A	67	D	78	D
2	B	13	B	24	D	35	D	46	C	57	D	68	D	79	C
3	D	14	A	25	A	36	D	47	B	58	D	69	D	80	A
4	A	15	B	26	A	37	D	48	A	59	B	70	B	81	D
5	C	16	A	27	D	38	A	49	C	60	A	71	B	82	D
6	D	17	A	28	A	39	C	50	D	61	A	72	B	83	B
7	A	18	D	29	C	40	B	51	B	62	C	73	D	84	A
8	D	19	A	30	A	41	A	52	A	63	B	74	C	85	B
9	D	20	D	31	C	42	D	53	C	64	B	75	C	86	A
10	D	21	D	32	C	43	B	54	D	65	D	76	B	87	D
11	A	22	B	33	B	44	D	55	D	66	D	77	C		

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UNIT 9

PRACTICE EXERCISE

Life Processes in Animals and Plants (Nutrition/Gaseous Exchange/Transport)

1. **Sap ascends in woody plants because of the root pressure and**
   A) Transpiration pull
   B) Capillarity
   C) Molecular adhesion
   D) Photosynthesis

2. **The most widely accepted explanation for the ascent of sap in tree is**
   A) Capillarity
   B) Roll of atmospheric pressure
   C) Pulsating action of living cells
   D) Transpiration cohesion theory of Dixon

3. **One of the following is not insectivorous plants**
   A) Venus fly trap
   B) Sundew
   C) Cuscuta
   D) Pitcher plant

4. **Insectivorous plants can prepare their own food because they have**
   A) Chlorophyll
   B) Stem
   C) fruit
   D) Roots

5. **The pressure exerted by the swelling protoplast on the walls of the cell is**
   A) Wall pressure
   B) Suction pressure
   C) Osmotic pressure
   D) Turgor pressure

6. **Pulmonary circulation is required for**
   A) Nutrient supply to lungs
   B) Elimination of waste products from the lungs
   C) Oxygenation of deoxygenated blood
   D) Nutrient supply to heart

7. **The second heart sound (dub) is associated with the closure of**
   A) Tricuspid valve
   B) Semilunar valves
   C) Bicuspid valve
   D) Tricuspid and bicuspid valves

8. **Arteries are best defined as the vessels which:**
   A) Carry blood away from the heart to different organs.
   B) Break up into capillaries which reunite to form a vein.
   C) Carry blood from one visceral organ to another visceral organ.
   D) Supply oxygenated blood to different organs.

9. **Dubb sound by heart is made due to:**
   A) Closing of A V valves
   B) Opening of AV valves
   C) Closing of semilunar valves
   D) Opening of semilunar valves

10. **Water will be absorbed by root hairs when**
    A) Concentration of solutes in the cell sap is high
    B) Plant is rapidly respiring
    C) They are separated from soil by a permeable membrane
    D) Concentration of salts in the soil is high

11. **The path of water from soil up to secondary xylem is**
    A) Soil → Root hair cell wall → Cortex → Endodermis → Pericycle → Protoxylem → Metaxylem
    B) Cortex → Root hair → Endodermis → Pericycle → Protoxylem → Metaxylem
    C) Pericycle → Soil → Root hair → Cortex → Endodermis → Protoxylem → Metaxylem
    D) Soil → Root hair cell wall → Cortex → Pericycle → Endodermis → Protoxylem → Metaxylem

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12. **Osmosis is the movement of**
A) Solute particles from higher concentration to lower concentration
B) Solvent particles from higher water potential to lower water potential
C) Solute particles from higher concentration to lower concentration through a semipermeable membrane
D) Solvent particles from lower water potential to higher water potential

13. **Transpiration takes place when outer atmosphere has**
A) Percentage of moisture more than that of stomatal cavity
B) Percentage of moisture less than that of stomatal cavity
C) Percentage of moisture equal in atmosphere and stomatal cavity
D) High percentage of moisture

14. **Which of the following is NOT a function of transpiration?**
A) Excretion of minerals
B) Cooling of leaves
C) Uptake of water
D) Uptake of minerals

15. **Pick up the correct sequence of tissues found in the wall of artery:**
A) Connective tissue → circular smooth muscles → elastic layer → endothelium
B) Connective tissue → elastic layer → endothelium → circular smooth muscles
C) Connective tissue → endothelium → elastic layer → circular smooth muscles
D) Circular smooth muscles → connective tissue → endothelium → elastic layer

16. **The tricuspid valve is present between**
A) Ventricle and pulmonary artery
B) Left auricle and left ventricle
C) Ventricle and aorta
D) Right auricle and right ventricle

17. **Which of the following has the thickest wall?**
A) Right ventricle
B) Right atrium
C) Left ventricle
D) Left atrium

18. **Pacemaker is _____**
A) AV node
B) Bundle of HIS
C) SA node
D) Ventricle muscles

19. **Chordae tendinae occur in**
A) Ventricles of heart
B) Aorta
C) Auricles of heart
D) Ventricles of brain

20. **Vein differs from artery in having**
A) Narrow lumen
B) Pigmented wall
C) Strong muscular walls
D) Valves

21. **The lymphatic system consists of all the following except:**
A) Blood
B) Lymphatic vessels
C) Lymph nodes
D) Lymph

22. **Lymph nodes may be located in the human body in the tissues of the**
A) Stomach and brain
B) Ventricle and atrium
C) Groin and neck
D) Thyroid gland and adrenal gland

23. **Inferior vena cava receives blood from all of the following except:**
A) Iliac veins
B) Hepatic portal veins
C) Renal veins
D) Hepatic veins

24. **Outlet valves of heart are called:**
A) Tricuspid valve
B) Bicuspid valve
C) Semi lunar valve
D) Mitral valve

25. **Elastic fibers and muscles are absent in?**
A) Arteries
B) Veins
C) Capillaries
D) Present in all

26. The flow of lymph is always
A) Towards thoracic duct
B) Away from the thoracic duct
C) Towards adenoids
D) towards axilla

27. The pressure within capillaries causes a continuous leakage of fluid from the blood plasma into the spaces that surround the capillaries and tissue. This fluid is known as:
A) Lymph
B) Interstitial fluid
C) Intracellular Fluid
D) Serum

28. Trypsinogen is converted into trypsin by the activity of:
A) Oxyntic cells
B) Absorptive cells
C) Enterokinase
D) Peptidase

29. Heart burn is associated with:
A) Blockage of coronary arteries
C) A pain of chest muscles
B) Burning sensation in esophagus
D) A respiratory disorder

30. Chief cells are found in:
A) Stomach
B) Esophagus
C) Intestine
D) Caecum

31. Pancreatic amylase is also called:
A) Amylopectin
B) Amylopsin
C) Amylopsis
D) Heparin

32. Action of which enzyme gives amino acids:
A) Erypsin
B) Pepsin
C) Trypsin
D) Ptyalin

33. Proteins combine with fat molecules to form lipoprotein droplet in:
A) Blood capillaries
B) Jejunum
C) Epithelial cells
D) Ileum

34. In large intestine bacteria synthesize some vitamins especially:
A) Vitamin A
B) Vitamin E
C) Vitamin D
D) Vitamin K

35. Which is opposite to diarrhea:
A) Vomiting
B) Appendicitis
C) Constipation
D) Food poisoning

36. Peristalsis is not seen in?
A) Oral cavity
B) Esophagus
C) Small intestine
D) Large intestine

37. Tissue rejection is executed by:
A) Both B and T lymphocytes
B) Monocytes
C) B-lymphocytes
D) T-lymphocytes

38. Thymus gland is involved in maturation of:
A) Platelets
B) B-Lymphocytes
C) Eosinophils
D) T-Lymphocytes

39. Mucous membranes are part of body defense system and they offer:
A) Physical Barriers
B) Mechanical Barriers
C) Chemical Barriers
D) Biological Barriers

40. Antigen is a foreign protein or any other molecule which stimulates the formation of:
A) MC complex
B) Immunogen
C) Mucus
D) Antibodies

41. T-lymphocytes become mature and competent under the influence of:
A) Liver
B) Bursa of fabricius
C) Thymus gland
D) Spleen

42. **The lymph vessel of villi is called:**
A) Epithelium
B) Afferent lymph vessel
C) Adrenals
D) Lacteal

43. **Now a day every new born gets regular shots of vaccine for polio. It contains _____ for polio to make a child immune against this disease.**
A) Antisera
B) Antibodies
C) Antibiotics
D) Antigens

44. **A person got an infection, he became ill but then he survived. What do you think which type of immunity he would have developed?**
A) Naturally induced active immunity
B) Artificially induced active immunity
C) Active immunity
D) Passive immunity

45. **What type of immunity is achieved by injecting antibodies, antiserum, anti-venom serum?**
A) Active immunity
B) Passive immunity
C) Innate immunity
D) Naturally induced immunity

46. **Antivenom given after a snake bite venom is an example of:**
A) Artificial active immunity
B) Natural active immunity C. Vaccination
C) Artificial passive immunity
D) Natural passive immunity

47. **T-lymphocytes recognize antigen and attack microorganisms or transplanted organ and tissues. This effect is called:**
A) Cell-mediated response
B) Humeral immune response
C) Active immunity
D) Passive immunity

48. **Factors at tissue level favours the dissociation of oxygen from oxyhaemoglobin**
A) Low pO_2, low pCO_2, high H^+, low temperature
B) High pO_2, high pCO_2, low H^+, high temperature
C) Low pO_2, high pCO_2, high H^+, high temperature
D) Low pO_2, high pCO_2, high H^+, low temperature

49. **The enzyme essential for transport of CO_2 as bicarbonate in blood is**
A) Carboxypeptidase
B) Succinic dehydrogenase
C) Carbonic anhydrase
D) Thrombokinase

50. **Sites of gaseous exchange in lungs are**
A) Alveoli
B) Bronchi
C) Bronchioles
D) Pleura

51. **Pleura is a double membrane sac which envelops**
A) Kidneys
B) Brain
C) Lungs
D) Nasal passage

52. **Which of the following are functions of conducting part of the respiratory system?**
A) Removal of foreign particles from incoming air.
B) Humidifies incoming air
C) Bring the temperature of incoming air to body temperature.
D) All the above

53. **_____ is the site of actual diffusion of O_2 and CO_2 between blood and atmospheric air.**
A) All bronchi
B) All bronchioles
C) All bronchi and terminal bronchioles
D) Alveoli and their ducts

54. **Even when air being absent, the human trachea does not collapse due to the presence of**
A) Bony rings
B) Chitinous rings
C) Turgid pressure
D) Cartilaginous rings

55. **Arrange the following steps of respiration properly:**
1. **Breathing or pulmonary ventilation by which atmospheric air is drawn in and CO_2 rich alveolar air is released out.**
2. **Diffusion of gases (O_2 and CO_2) across alveolar membrane.**
3. **Transport of gases by the blood.**
4. **Diffusion of O_2 and CO_2 between blood and tissues.**
5. **Utilization of O_2, by the cells for catabolic reactions and resultant of CO_2**

A) 1,2,3,4,5 C) 5,4,3,1,2
B) 1,3,2,5,4 D) 3,4,5,2,1

56. **Carbonic anhydrase is present in high concentration in**
A) Plasma C) Leucocytes
B) Erythrocytes D) Neurons

57. **Which one of the following is NOT true?**
A) Blood from right side of heart is carried to lungs by pulmonary artery
B) Pleura are double covering of kidney
C) Pancreas is both exocrine and endocrine gland
D) Scurvy is due to vitamin C deficiency

58. **Which of the following prevents collapsing of trachea?**
A) Diaphragm C) Cartilaginous discs
B) Ribs D) Muscles

59. **Lungs have a large number of alveoli for**
A) Having spongy texture and proper shape
B) More surface area for diffusion of gases
C) More space for increasing volume of inspired air
D) More nerve supply

60. **Each lung is enclosed in two membranes called pleura. The membrane, which closely covers the lung, is called**
A) Parietal pleura C) Peritoneum pleura
B) Visceral pleura D) Lung pleura

61. **Which is the correct sequence of the air passage in man?**
A) Nasal cavity → pharynx → trachea → larynx → bronchi → bronchioles → alveoli
B) Nasal cavity → pharynx → larynx → trachea → bronchi → bronchioles → alveoli
C) Nasal cavity → larynx → pharynx → trachea → bronchi → bronchioles → alveoli
D) Nasal cavity → larynx → bronchi → pharynx → trachea → bronchioles → alveoli

62. **In mammals, voice is produced by**
A) Bronchus C) Syrinx
B) Larynx D) Inhalation and exhalation

63. **What helps in voice production, when vibrated by air:**
A) Larynx C) Vocal cords
B) Voice box D) Pharynx

64. **How O_2 and CO_2 gets transported through blood?**
A) With the help of RBCs and blood plasma C) With the help of WBCs and blood serum
B) With the help of RBCs and WBCs D) With the help of platelets and corpuscles

65. **Each bronchus on entering the lung divides and sub divides progressively into smaller and smaller:**
A) Bronchioles C) Alveolar ducts
B) Bronchi D) Tracheoles

66. **Pressure inside the chest cavity is reduced by:**
A) Downward movement of diaphragm
B) Upward movement of diaphragm
C) Upward movement of the ribs
D) Downward movement of the diaphragm and upward movement of ribs

67. **During oxygen transport the oxyhaemoglobin at the tissue level liberates oxygen to the cells because in tissue**
A) O_2 concentration is high and CO_2 is low.
B) O_2 concentration is low and CO_2 is also low.
C) O_2 tension is high and CO_2 tension is low.
D) O_2 tension is low and CO_2 tension is high.

68. **Blood transport of CO_2 occurs in three forms. The correct percentages of CO_2 in these forms are**

	As Carbaminohaemoglobin in RBC	As bicarbonates	Dissolved form in plasma
A)	20 – 25 %	70%	5%
B)	7 %	20 – 25%	70%
C)	20 – 25%	7%	70%
D)	70%	20 – 25%	7%

69. **Each molecule of haemoglobin can carry at the maximum of _____ molecules of O_2.**
A) 1
B) 2
C) 3
D) 4

70. **Under given oxygen concentration in blood, dissociation of oxyhaemoglobin will increase if**
A) pH of blood falls
B) pH of blood rises
C) CO_2 concentration in blood falls
D) Free fatty acid concentration in flood falls

71. **Oxygen binding to haemoglobin is**
A) Directly proportional to CO_2 concentration
B) Directly proportional to CO concentration
C) Inversely proportional to CO_2 concentration
D) Independent of CO concentration

72. **The most characteristic feature of haemoglobin is**
A) Its red colour
B) Presence of iron
C) Its ability to combine reversibly with oxygen
D) Presence of basic protein globin

73. **Each nasal cavity is sub-divided into:**
A) Two passage ways
B) Three passage ways
C) Four passage ways
D) Five passage ways

74. **Large dust particles are trapped by the hair and mucus in the:**
A) Nostrils
B) Pharynx
C) Nasal cavities
D) Nose

75. **The opening of larynx is called:**
A) Nostril
B) Glottis
C) Nares
D) Epiglottis

76. **It is the functional unit of lungs:**
A) Air sacs
B) Bronchioles
C) Alveoli
D) Bronchi

77. **Deficiency of surfactant in infants results in:**
A) Asthma
B) Respiratory distress syndrome
C) Emphysema
D) Sinusitus

78. **An enzyme that is involved in dissociation of oxygen from hemoglobin is called:**
A) Carboxylase
B) Oxygenase
C) Anhydrase
D) Deoxygenase

79. Hemoglobin readily combines with oxygen to form:

A) Bright red oxyhemoglobin
B) Purple red oxyhemoglobin
C) Bright red hemoglobin
D) Purple red hemoglobin

80. When muscles of diaphragm contract it becomes:

A) More dome like
B) Less dome like
C) Less flat
D) Convex

81. Oxygen Carrying capacity of hemoglobin decrease with:

A) Decrease in Temperature
B) Increase in pH
C) Decrease in CO_2 Concentration
D) Decrease in pH

82. In the structural diagram of an antibody molecule which portion is occupied by variable chains?

A) Lower region
B) Upper region
C) Middle region
D) In between chains

83. Passive immune response is:

A) Long lasting
B) Delayed
C) Immediate
D) Persistent

84. Antibodies consists of:

A) 2 light chains and 2 heavy chains arranged in a Y-shaped configuration
B) A light chain and 2 heavy chains arranged in a Y-shaped configuration
C) 2 light chains and a heavy chain arranged in a Y-shaped configuration
D) all of these

85. In passive immunity which of the following component are injected into blood:

A) Antigens
B) Immunogens
C) Serum
D) Immunoglobulins

86. In antibody molecule, two heavy and two light chains are bonded by:

A) Disulphide Bond
B) Monosulphide Bond
C) Hydrogen Bond
D) Ionic Bond

87. The immunity in which T cells recognize the antigens or microorganisms is known as:

A) Tissue Grafting
B) Phagocytosis
C) Cell Mediated Immunity / Response
D) Hormonal Immunity / Response

ANSWER KEY

1	A	11	A	21	A	31	B	41	C	51	C	61	B	71	C	81	D
2	D	12	B	22	C	32	A	42	D	52	D	62	B	72	C	82	B
3	C	13	B	23	B	33	C	43	D	53	D	63	C	73	B	83	C
4	A	14	A	24	C	34	D	44	A	54	D	64	A	74	A	84	A
5	D	15	A	25	C	35	C	45	B	55	A	65	A	75	B	85	D
6	C	16	D	26	A	36	A	46	C	56	B	66	D	76	A	86	A
7	B	17	C	27	B	37	D	47	A	57	B	67	D	77	B	87	C
8	A	18	C	28	C	38	D	48	C	58	C	68	A	78	C		
9	C	19	A	29	B	39	A	49	C	59	B	69	D	79	A		
10	A	20	D	30	A	40	D	50	A	60	B	70	A	80	B		

PAST PAPER MCQs 2008 – 2020

LIFE PROCESSES IN PLANTS

Carnivorous plants/parasitic nutrition

Osmotic pressure/potential

NO QUESTION YET ASKED

Q.1 **The dew drops on tips of grass leaves in an example of:** **(2008)**
A) Infestation
B) Bleeding
C) Exudation
D) Imbibition

Q.2 **The attraction among water molecules which hold water together is called:** **(2008)**
A) Tension
B) Adhesion
C) Cohesion
D) Imbibition

Q.3 **Four plants are present in different environmental conditions. Plant A is present in warm climate with continuous rainfall, plant B is present in a cool forest, plant C is present in warm climate with little breeze while plant D is present in warm climate high wind speed. Which one of the above plants will have highest rate of transpiration?** **(2019)**
A) Plant B
B) Plant D
C) Plant C
D) Plant A

Q.4 **Water and minerals move down their concentration gradient through plasmodesmata, to cells of cortex, endodermis, pericycle and then to sap in the xylem cells. This is also known as the** **(2019)**
A) Symplastic pathway
B) Mineral absorption pathway
C) Vacuolar pathway
D) Apoplastic pathway

Q.5 **In plants, which sugar is transported from source to sink through sieve tubes?** **(2019)**
A) Fructose
B) Sucrose
C) Glucose
D) Starch

Q.6 **In roots, the apoplast pathway of water is disrupted when water reaches:** **(2020)**
A) Plasmodestmata
B) Endodemis
C) Cortex
D) Pith

Xerophytes

Q.7 **Xerophytes have small thick leaves to:** **(2019)**
A) Help them float on water
B) Help them survive in salty environment
C) Limit water loss by reducing the surface area
D) Limit water loss by increasing the surface area

Life Processes In Animals:

Cardiovascular system (including human heart structure, blood vessels)

BLOOD AND ITS COMPOSITION

Q.8 **Heparin prevents blood clots and is released by: OR** **(2009)**
A type of blood cell that produces heparin is: **(2017)**
A) Eosinophils
B) Monocytes
C) Neutrophils
D) Basophils

Q.9 **Granulocytes or white blood cells are produced in:** **(2010)**
A) Lymph nodes
B) Red bone marrow
C) Tonsils
D) Spleen

Q.10 **Which protein plays a major role in maintaining osmotic balance?** **(2011)**
A) Albumin
B) Globulin
C) Fibrinogen
D) Prothrombin

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Q.11 The type of agranulocytes which stay in blood for few hours and then enter the tissues and become macrophages are: (2011)
A) Lymphocytes
B) Monocytes
C) Eosinophils
D) Basophils

Q.12 Mature mammalian red blood cells do not have: (2012)
A) Nucleus
B) Red color
C) Fluids
D) Hemoglobin

Q.13 In a normal person plasma constitutes about _____ by volume of blood: (2012)
A) 50%
B) 60%
C) 45%
D) 55%

Q.14 The average life span of red blood cell is about: (2013)
A) Four months
B) Two months
C) Five months
D) One month

Q.15 Histamine is produced by which one of the following cells? (2014)
A) Basophils
B) Platelets
C) Monocyte
D) Eosinophils

Q.16 Which one of the following is the most numerous/ commonest of white blood cells? (2014)
A) Eosinophils
B) Monocytes
C) Neutrophils
D) Lymphocytes

Q.17 Which one of the following proteins takes part in blood clotting? (2014)
A) Prothrombin
B) Fibrinogen
C) Immunoglobulin
D) Globulin

Q.18 Granulocytes are: (2015)
A) Monocytes, Eosinophils, Basophils
B) Basophils, Macrophages, Neutrophils
C) Neutrophils, Eosinophils, Basophils
D) Monocytes, Macrophages, Basophils

Q.19 Which of the following is agranulocyte cell? (2017-Retake)
A) Neutophils
B) Eosinophils
C) Basophils
D) Lymphocytes

Q.20 Percentage of protein in human blood is: (2017-Retake)
A) 1-2
B) 7-10
C) 7-9
D) 6-9

Q.21 Which one of the following cells does not have nucleus: (2018)
A) Eosinophils
B) Platelets
C) Basophils
D) Neutrophils

Q.22 The major function of Basophils is to: (2019)
A) Destroy small particles by phagocytosis
B) Release heparin to prevent blood clotting
C) Inactivate inflammation producing substances
D) Transport oxygen

Structure Of Heart

Q.23 The right atrium of the heart usually receives the: (2011)
A) Deoxygenated blood
B) Oxygenated blood
C) Filtered blood
D) Non-filtered blood

Q.24 Right atrium is separated from right ventricle by: (2013 & 2015)
A) Semilunar valve
B) Tricuspid valve
C) Bicuspid valve
D) Septum

Q.25 The flaps of tricuspid valves are attached to the muscular extensions of right ventricle known as: (2015)
A) Smooth muscles
B) Papillary muscles
C) Inter coastal muscle
D) Skeletal muscles

Q.26 **In human the closed sac which surrounds the heart is:** (2016)
A) Endocardium
B) Myocardium
C) Pericardium
D) Epicardium

Q.27 **Chordae tendineae are fibrous cords attached with:** (2016)
A) Cardiac end of stomach valve
B) Tricuspid valve of heart
C) Pyloric sphincter of stomach
D) Eye lid

Q.28 **Bicuspid valve controls the flow of blood from:** (2016)
A) Right atrium to right ventricle
B) Right ventricle to pulmonary artery
C) Left ventricle to aorta
D) Left atrium to left ventricle

Q.29 **Bicuspid valve is present in which part of heart?** (2017-Retake)
A) Right atrium and right ventricle
B) Right atrium and left ventricle
C) Left atrium and left ventricle
D) Left atrium and right ventricle

Q.30 **The thickest chamber of human heart is:** (2018)
A) Left atrium
B) Right atrium
C) Right ventricle
D) Left ventricle

Q.31 **Regarding structure of the human heart, CHORDEAE tendinae are present in:** (2020)
A) Atria
B) Pulmonary valve
C) Ventricles
D) Aortic valve

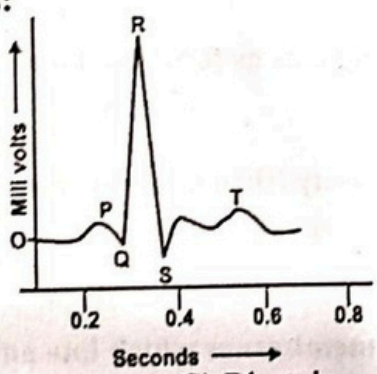
CARDIAC CYCLE

Q.32 **Which of the following statement best describes the function of sinoatrial node?** (2009, 2010)
A) It sends out electrical impulses to ventricles to contract.
B) It is present at upper end of the left atrium
C) It consists of small number of diffusely oriented cardiac fibers.
D) It sends out electrical impulses to atrial muscles causing both atria to contract.

Q.33 **One complete heartbeat consists of one systole and one diastole and lasts for about:** (2015)
A) 0.8 sec
B) 0.2 sec
C) 0.4 sec
D) 0.5 sec

Q.34 **The heart beat cycle starts when electric impulses are generated from:** (2015)
A) AV node
B) SV node
C) SA node
D) PQ node

Q.35 **In ECG, QRS wave represents:** (2017)



A) Ventricular systole
B) Atrial systole
C) Diastole
D) Recovery systole

Q.36 **Cardiac cycle lasts about:** (2017-Retake)
A) 0.4 sec
B) 0.8 sec
C) 0.01 sec
D) 0.5 sec

Q.37 **Which statement is correct about arterial systole:** (2018)
A) Atria relax and ventricles contract
B) Atria contract and ventricle also contract
C) Atria and ventricles are relaxed
D) Ventricles remain relax while atria contract

Q.38 Which one of the following act as a PACEMAKER in Heart: (2018)

A) Atrio ventricular node
B) Atrio ventricular bundles of fibers
C) Sino atrial node
D) Bundle of His

Blood Circulation:

Q.39 Which vein has oxygenated blood? OR The only vein in the human body carrying oxygenated blood is: (2012 & 2020)

A) Renal vein
B) Subclavian vein
C) Pulmonary vein
D) Jugular vein

Q.40 The oxygenated blood from lungs to heart is transported by the: (2014)

A) Pulmonary artery
B) Coronary artery
C) Pulmonary vein
D) Hepatic artery

Q.41 In human heart the left atrium receives: (2020)

A) The superior vena cava
B) The inferior Vena Cava
C) The coronary sinus
D) The four pulmonary veins

Blood Vessels:

Q.42 Elastic fibers are absent in the wall of: (2017)

A) Aorta
B) Arteries
C) Capillaries
D) Veins

Q.43 Which of the following blood vessels contain semilunar valves? (2019)

A) Arteries
B) Veins
C) Arterioles
D) Capillaries

Q.44 : Which of the following blood vessels have the highest pressure of blood? (2020)

A) Aorta
B) Pulmonary arteries
C) Pulmonary veins
D) Vena Cava

Arterial & Circulatory Disorders:

Q.45 Arteriosclerosis is: (2009)

A) A metabolic disorder
B) A degenerative Disorder
C) An infectious disorder
D) A nutritional deficiency disorder

RESPIRATORY SYSTEM

Anatomy of Respiratory System

Q.46 Which of the following does not have specialized respiratory organs? (2008)

A) Hydra
B) Bird
C) Cockroach
D) Both A and B

Q.47 Which one of the following acts as functional unit of lungs in man? (2010)

A) Air sac
B) Larynx
C) Trachea
D) Bronchioles

Q.48 The opening in the oral cavity (throat) through which air enters the wind pipe is called: (UHS-Model Paper 2011)

A) Glottis.
B) Bronchus.
C) Larynx.
D) Pharynx.

Q.49 The double layer of thin membranes which line and cover lungs are called: (UHS-Model Paper 2011)

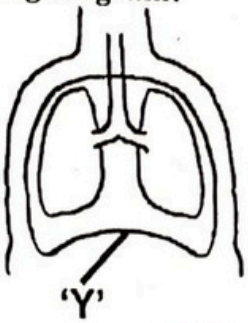
A) Diaphragm.
B) Alveoli.
C) Pleura.
D) Bronchioles.

Q.50 Respiratory tubules are known as bronchioles when they attain the diameter of _____ or lesser: (2017)

A) 1.2 cm
B) 1.0 cm
C) 1.0 mm
D) 1.2 mm

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Q.51 Label the part 'Y' in the following diagram: (2017)



A) Pleura
B) Diaphragm
C) Chest cavity
D) Intercostal muscles

Q.52 Site of gaseous exchange in humans is: (2017-Retake)
A) Trachae
B) Alveoli
C) Bronchus
D) Nose

Q.53 During breathing air from pharynx enters in: (2018)
A) Alveoli
B) Bronchioles
C) Bronchi
D) Trachea

Mechanism of Breathing

Q.54 Expiration in human beings is carried out by (2010)
A) Contraction of lungs
B) Contraction of intercostal membrane
C) Relaxation of intercostal and diaphragm muscles
D) Contraction of diaphragm muscles

Q.55 Exchange of gases during organismic respiration is carried out by:
Gaseous exchange in animals takes place with the help of process called as:
(UHS-Model Paper 2011 & 2017-Retake)
A) Diffusion.
B) Active transport.
C) Osmosis.
D) Facilitated diffusion.

Q.56 Breathing consists of: (2016)
A) Four phases
B) Three phases
C) One phase
D) Two phases

Q.57 During inspiration the space inside the chest cavity is increases due to: (2019)
A) Increased pressure
B) The relaxation of the muscle of the diaphragm
C) Relaxation of the external intercostal muscle
D) The contraction of the muscles of the diaphragm

Transport of Oxygen and Carbon Dioxide

Q.58 When carbon dioxide pressure increases the capacity of haemoglobin to hold oxygen: (2008)
A) Increases many folds
B) Decreases
C) Remains constant
D) Is doubled

Q.59 Most of the carbon dioxide is carried by blood in form of: (2009)
A) Bicarbonate
B) Carboxy Haemoglobin
C) CO_2
D) Blood plasma proteins

Q.60 Which one of the following is directly proportional to oxygen carrying capacity of Haemoglobin? (2010)
A) Carbon dioxide (CO_2)
B) Temperature
C) pH
D) Light

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Q.61 Transportation of oxygen from lungs to the tissue cells is by means of: (UHS-Model Paper 2011)

A) Complete blood.
B) Lymph.
C) Red blood cells.
D) White blood cells.

Q.62 About 70-85 % CO_2 in blood is carried: (2015)

A) As carboxyhaemoglobin
B) With proteins in plasma
C) Freely as CO_2
D) As bicarbonate

Q.63 Carboxyhaemoglobin (10-20%) is formed when CO_2 combines with: (2016)

A) Amino group of haemoglobin
B) Iron part of haemoglobin
C) Haem portion of haemoglobin
D) Plasma proteins

Q.64 Low partial pressure of oxygen in tissues favors the _____ of oxyhemoglobin: (2017)

A) Dissociation
B) Formation
C) Stability
D) Transformation

Respiratory Pigments:

Q.65 The respiratory pigment, which has much higher affinity to combine with oxygen, is: (2009)

A) Myoglobin
B) Globin
C) Haemoglobin
D) Hemocyanin

Q.66 Which of the following statement is correct about respiratory pigments: (2018)

A) Albumin, Globulin and globin proteins are present in respiratory pigments
B) Myoglobin and Hemoglobin has higher affinity for nitrogen
C) Myoglobin has more affinity for oxygen as compare to hemoglobin
D) Cyanide and Hemoglobin has low affinity for oxygen

Lungs Capacity:

Q.67 The total inside capacity of lungs of adult human beings when fully inflated is: (2008)

A) 5ml
B) 50ml
C) 500 ml
D) 5000 ml

Q.68 What is the residual volume of air which always remains inside the lungs of human? (2012)

A) 3.5 liters
B) 0.5 liters
C) 5.0 liters
D) 1.5 liters

Q.69 The total inside capacity of the lung is _____ for men: (2013)

A) 7 liters
B) 5 liters
C) 6-7 liters
D) 2.5 liters

Q.70 Exhaled air contain how much percentage of CO_2: (2017-Retake)

A) 4
B) 0.04
C) 21
D) 16

Respiratory Disorders:

Q.71 Which one of the following is a respiratory disorder that is related to malnutrition? (2017)

A) Cancer
B) Asthma
C) Emphysema
D) Tuberculosis

Q.72 Breakdown of thin wall of alveoli occurs in: (2017-Retake)

A) Emphysema
B) Cancer
C) T.B
D) Asthma

Q.73 Gradual breakdown of the alveolar wall leads to which type of disease in a smoker? (2018)

A) Asthma
B) Bronchitis
C) Coronary heart disease
D) Emphysema

Q.74 The low level of Surfactant produced by Alveolar epithelial causes: (2018)
A) Emphysema
B) Bronchitis
C) Respiratory distress syndrome
D) Asthma

Q.75 A disease caused by gradual breakdown of the thin walls of alveoli is_____. (2019)
A) Tuberculosis
B) Asthma
C) Emphysema
D) Bronchitis

DIGESTIVE SYSTEM

Oral Cavity (Role of Saliva and Enzymes)

Q.76 In human beings, what is the function of amylase in digestion? (2010)
A) Digestion of triglycerides
B) Digestion of lipids
C) Digestion of all types of food
D) Digestion of carbohydrates

Q.77 Saliva is basically composed of water, mucus, amylase and: (2013)
A) Sodium hydroxide
B) Hydrocarbons
C) Sodium bicarbonate
D) Sodium chloride

Q.78 Digestion of ____starts in oral cavity due to the action of enzyme present in saliva. (2016)
A) Starch
B) Cellulose
C) Fatty acids
D) Polypeptides

Q.79 Salivary amylase begins to digest starch to shorter polysaccharides and then to: (2018)
A) Sucrose
B) Glucose
C) Maltose
D) Lactose

Q.80 Number of salivary glands found in human oral cavity: (2018)
A) 3
B) 4
C) 6
D) 2

Pharynx (Swallowing)

Q.81 During swallowing the food travels from oral cavity to the stomach by way of esophagus: (UHS-Model Paper-2011)
A) Very quickly.
B) By anti-peristalsis.
C) Pushed down by pharynx.
D) Moving due to peristalsis.

Q.82 During swallowing of food which structure closes nasal opening? (2011)
A) Hard palate
B) Soft palate
C) Epiglottis
D) Larynx

Q.83 Food is diverted into the esophagus by: (2017)
A) Glottis
B) Tongue
C) Cheeks
D) Epiglottis

Oesophagus (Peristalsis, Anti-Peristalsis)

Q.84 Digestive system consists of different layers, the innermost is known as: (2016)
A) Submucosa
B) Mucosa
C) Muscularis
D) Serosa

Stomach (Chemical and Mechanical Digestion)

Q.85 At the junction between esophagus and the stomach there is a special ring of muscles called: (2009)
A) Cardiac Sphincter
B) Ileocolic Sphincter
C) Esophageal Sphincter
D) Pyloric Sphincter

Q.86 The term chyme is applied to: (UHS-Model Paper-2011)
A) Semi-digestive food in oral cavity.
B) Semi-solid food in stomach.
C) Semi-digested food in the small intestine.
D) Completely digested food in the last part of small intestine.

Q.87 Which of the following enzyme is released in an inactive form? (2011)
A) Amylase
B) Lipase
C) Enterokinase
D) Pepsin

Q.88 The muscles of the stomach walls thoroughly mix up the food with gastric juice and the result semi-solid/ semi-liquid material is called: (2012)
A) Bolus
B) Chyle
C) Mucus
D) Chyme

Q.89 Goblet cells secrete: (2012)
A) HCL
B) Mucus
C) Enzymes
D) Amylase

Q.90 The function of goblet cells is to secrete: (2014)
A) Gastrin
B) Hydrochloric acid
C) Pepsinogen
D) Mucus

Q.91 Gastric glands are made up of _____ type of cells: (2014)
A) Two
B) Three
C) Four
D) Five

Q.92 HCL in gastric juice is secreted by which one of the following cells? (2014)
A) Chief cells
B) Oxyntic cells
C) Mucous cells
D) Kupffer cells

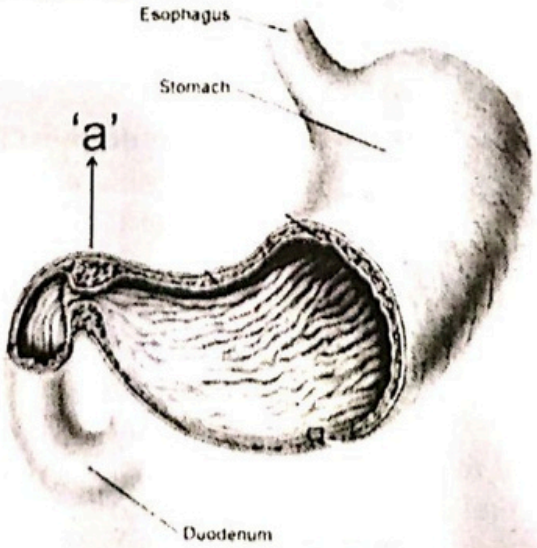
Q.93 Oxyntic cells in stomach produce: (2015)
A) Pepsin
B) Pepsinogen
C) Gastrin
D) HCl

Q.94 Food enters from stomach into small intestine through: (2016)
A) Pyloric sphincter
B) Cardiac sphincter
C) Semilunar valve
D) Diaphragm

Q.95 _____ are the part of gastric gland which produce hydrochloric acid. (2016)
A) Parietal cells
B) Goblet cells
C) Chief cells
D) Zymogen cells

Q.96 Protein components of food are digested by the enzymatic secretion of: (2016)
A) Goblet cells
B) Parietal cells
C) Zymogen cells
D) Oxyntic cells

Q.97 Label 'a' in the following diagram: (2017)

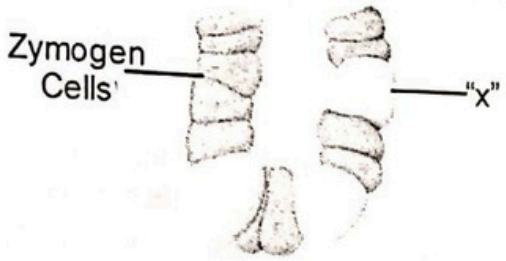


A) Cardiac sphincter
B) Sinoatrial valve
C) Stomach valve
D) Pyloric sphincter

Q.98 **Enzyme pepsin acts on:** (2017)

Option	Substrate	Product
A)	Proteins	Polypeptides
B)	Polypeptide	Dipeptides
C)	Fats	Fatty acids / glycerol
D)	Proteins	Amino acids

Q.99 **Following is the structure of a gastric gland in stomach wall where 'X' is:** (2017)



A) Mucosa
B) Mucous cells
C) Visceral fat cells
D) Oxyntic cells

Q.100 **Which of the following cells secrete HCl:** (2017-Retake)
A) Oxyntic cells
B) Zymogen cells
C) G Cells
D) Mucous cells

Small Intestine (Duodenum, Jejunum, Ileum):

Q.101 **Hepatic and pancreatic secretions are also stimulated by a hormone called:** (2009)
Which of the following hormone stimulates the secretion of pancreatic juices from pancreas and liver? (2011)
A) Gastrin
B) Secretin
C) Insulin
D) Glucagon

Q.102 **Like pepsin, trypsin is also secreted as inactive trypsinogen, which is activated by:**
(OR) Trypsinogen is converted/ activated into trypsin by the activity of:(2009, 2012 & 2015)
A) Enterokinase
B) Lipase
C) Chyme
D) Erypsin

Q.103 **The pancreas is a:** (2010)
A) Part of Stomach.
B) Part of Small intestine.
C) Part of Large intestine.
D) Separate gland.

Q.104 **Villi and micro villi are present:** (UHS-Model Paper-2011)
A) In pharynx.
B) In small intestine (jejunum).
C) In oesophagus.
D) In large intestine.

Q.105 **_____ is activated to _____, by enterokinase / enteropeptidase enzyme secreted by the lining of duodenum:** (2013)
A) Trypsinogen, trypsin
B) Pepsinogen, pepsin
C) Pepsinogen, trypsin
D) Chymotrypsinogen, chymotrypsin

Q.106 **The lymph vessel of villi is called:** (2015)
A) Epithelium
B) Afferent lymph vessel
C) Adenoids
D) Lacteal

Q.107 **The hormone which inhibits the secretion of gastric juice is:** (2015)
A) Secretin
B) Gastrin
C) Thyroxin
D) Parathormone

Q.108 **The emulsification of fats is the role of:** (2015)
A) Saliva
B) Pancreatic juice
C) Gastrin
D) Bile

Q.109 All kind of absorption take place in: (2017-Retake)

A) Duodenum
B) Jejunum
C) Ileum
D) Colon

LARGE INTESTINE: (Caecum, Colon, Rectum)

Q.110 Where is the ileocolic sphincter located in your body? (2010)

A) At the junction of esophagus and stomach
B) At the junction of stomach and small intestine
C) At the junction of ileum and large intestine
D) At the junction of small intestine and large intestine

Q.111 In large intestine vitamin K is formed by the activity of: (2011 & 2012)

A) Symbiotic bacteria
B) Obligate parasite
C) Parasitic bacteria
D) Facultative bacteria

Q.112 Which one of the following vitamins is produced by the microflora of large intestine? OR In human, *Escherichia coli* is involved in the formation of: (2013) (2014)

A) Vitamin D
B) Vitamin K
C) Vitamin C
D) Vitamin A

Q.113 Which of the followings are absorbed in the large intestine? (2013)

A) Water and peptones
B) Salts and glycerol
C) Water and salts
D) Amino acids and sugars

Q.114 Appendix is finger like process arise from: (2017-Retake)

A) Colon
B) Rectum
C) Caecum
D) Small intestine

Q.115 The first part of large intestine is: (2018)

A) Caecum
B) Rectum
C) Colon
D) Appendix

DISCUSS DISORDERS RELATED TO NUTRITION: (Obesity, Anorexia Nervosa).

Q.116 Name the neurotic disorder characterized by bouts of over eating of fattening foods: (2008)

A) Bulimia nervosa
B) Dyspepsia
C) Anorexia nervosa
D) Salmonella

Q.117 The term which is employed to the loss of appetite due to fear of becoming obese is: (2010 & 2018)

A) Obesity
B) Anorexia nervosa
C) Dyspepsia
D) Bulimia nervosa

IMMUNE SYSTEM & ITS COMPONENTS

Immune cells and Immunoglobulins:

Q.118 Tissue rejection is executed by: (2009)

A) Both B and T lymphocytes
B) Monocytes
C) B-lymphocytes
D) T-lymphocytes

Q.119 Antibodies are actually: (2009)

A) Globular proteins
B) Glycoproteins
C) Fibrous proteins
D) Glycolipids

Q.120 The chemical nature of antibody is: (UHS-Model Paper-2011)

A) Glycoproteins.
B) Glycolipids.
C) Lipoproteins.
D) Polysaccharides.

Q.121 B-lymphocytes and T-lymphocytes are formed: (UHS-Model Paper-2011)

A) Before birth in bone marrow.
B) Before birth in thymus gland.
C) After maturity in blood.
D) After birth in blood.

Q.122 Two identical light chains and two identical heavy chains in antibody molecule are linked by:
OR
In immunoglobulins/ antibodies, two light chains and two heavy chains are linked to each other by: (2013)
(2016 & 2018)
A) Covalent bonds
B) Hydrogen bonds
C) Disulphide bonds
D) Ionic bonds

Q.123 Thymus gland is involved in maturation of: (2011)
A) Platelets
B) B-lymphocytes
C) Eosinophils
D) T-lymphocytes

Q.124 Mucous membranes are part of the body defense system and they offer: (2011)
Skin and mucous membranes are part of the body defense system and they form the: (2012)
A) Physical barriers
B) Mechanical barriers
C) Chemical barriers
D) Biological barriers

Q.125 Antigen is a foreign protein or any other molecule which stimulates the formation of: (2012)
A) MHC complex
B) Immunogens
C) Mucus
D) Antibodies

Q.126 Antibodies are produced by which of the following lymphocytes? (2012)
A) B lymphocytes
B) A lymphocytes
C) T lymphocytes
D) B and T lymphocytes

Q.127 T-lymphocytes become mature and competent under the influence of: (2012)
A) Liver
B) Bursa of fabricius
C) Thymus gland
D) Spleen

Q.128 Which part of antibody recognizes the antigen during immune response? (2013 & 2014)
A) Heavy part
B) Variable part
C) Light part
D) Constant part

Q.129 In the structural diagram of an antibody molecule which portion is occupied by variable chains? (2013)
A) Lower region
B) Upper region
C) Middle region
D) In between chains

Q.130 Antibodies are produced against invading cells by: (2013)
A) Lymphocytes
B) Eosinophils
C) Basophils
D) Neutrophils

Q.131 Which one of the following glands is involved in the production of lymphocytes? (2014)
A) Pineal
B) Pituitary
C) Thymus
D) Adrenal

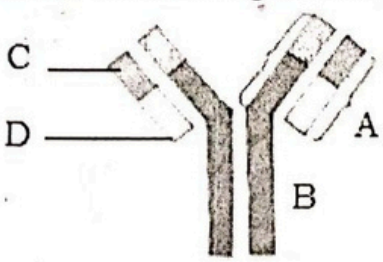
Q.132 Antibodies are proteins and made up of how many polypeptide chains? (2014, 2017& 2017-Retake)
A) One
B) Two
C) Three
D) Four

Q.133 B-lymphocytes are named due to their relationship with: (2015)
A) Blood
B) Bursa of Fabricius
C) Bone marrow
D) Bile duct

Q.134 Variable amino acid sequences in antibody molecule are found in_____. (2016)
A) Both light chains only
B) Both heavy chains only
C) One heavy and one light chain
D) Both heavy and light chains

Q.135 _____ cells survive for few days and they secrete huge number of antibodies in blood, tissue fluid or lymph: (2017)
A) Memory cells
B) B lymphocytes
C) T lymphocytes
D) Plasma cells

Q.136 Diagram is given below find the variable region of antibody: (2017-Retake)



Q.137 Antibodies are manufactured in: (2020)

A) T Lymphocytes
B) Red Blood Cells
C) Platelets
D) B Lymphocytes

Q.138 The cells which play very important role in developing immunity are: (2020)

A) Monocytes
B) Neutrophils
C) Lymphocytes
D) Thrombocytes

Cell Mediated Response and Humoral Immune Response:

Q.139 Which chemicals are secreted by T-helper cells to stimulate B-plasma cells to divide: (UHS-Model Paper-2011)

A) Interferons.
B) Cytokines.
C) Histamines.
D) Fibrin.

Q.140 B-cells release antibodies in blood plasma, tissue fluid and lymph. This kind of immune response is called: (2016)

A) Cell mediated response
B) Humoral response
C) Active response
D) Compound response

Q.141 The immunity in which T cells recognize the antigens or micro-organisms is known as: (2011)

A) Tissue grafting
B) Phagocytosis
C) Cell mediated immunity/ response
D) Humoral immunity/ response

Q.142 T-lymphocytes recognize antigen and attack microorganisms or transplanted organ and tissues. This effect is called: (2014 & 2015)

A) Cell mediated response
B) Humoral immune response
C) Active immunity
D) Passive immunity

Q.143 In _____response, B-cells produce plasma cells that synthesize antibodies and release in blood plasma and tissue fluid: (2015)

A) Cell mediated
B) Hormonal
C) Humoral
D) Phototactic

Q.144 Cell mediated immune response is given by: (2018)

A) Neutrophils
B) T-lymphocytes
C) Macrophages
D) B-lymphocytes

Types of Immunity:

Q.145 Which of the following is described as vaccination: (UHS-Model Paper-2011)

A) Artificial active immunity.
B) Natural active immunity.
C) Artificial passive immunity.
D) Natural passive immunity.

Q.146 The antibodies provided to infant through mother's milk is an example of: (UHS-Model Paper-2011)

A) Natural passive immunity.
B) Artificial passive immunity.
C) Natural active immunity.
D) Artificial active immunity.

Q.147 In passive immunity which of the following components are injected into the body? (2011 & 2013)

A) Antigens
B) Immunogens
C) Serum
D) Immunoglobulins

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Q.148 Immediate protection is obtained from: (2011)
A) Passive immunity
B) Active immunity
C) Vaccination
D) Natural active immunity

Q.149 Snake bite is treated with which type of immunization: (2012)
The immediate protection by infection of snake bite can be obtained by: (2017)
Anti-venom given after a snake bite venome is an example of: (2018)
A) Artificial active immunity
B) Natural active immunity
C) Artificial passive immunity
D) Natural passive immunity

Q.150 Which type of immunity is achieved by injecting antibodies, antiserum, and antivenome serum? (2014)
A) Active immunity
B) Passive immunity
C) Artificially induced immunity
D) Naturally induced immunity

Q.151 Passive immunity is used against: (2015)
A) Malaria
B) Typhoid
C) Dengue
D) Tetanus

Q.152 The type of immunity in which antibodies are passed from one individual to another is called: (2016)
A) Passive immunity
B) Artificial active immunity
C) Natural active immunity
D) Humoral immunity

Q.153 To combat the active infections of tetanus, rabies and snakes the _____ method of immunization is used. (2016)
A) Active
B) Humoral
C) Active artificial
D) Passive

Q.154 A person got an infection, he became ill but then he survived. What do you think which type of immunity he would have developed? (2019)
A) Naturally induced active immunity
B) Artificially induced active immunity
C) Active immunity
D) Passive immunity

Q.155 Autoimmune diseases act at the principle of: (2020)
A) Self against antigens
B) Antigen against self
C) Self against self
D) Antigen self-destroyed

Vaccination:

Q.156 Which of the following diseases can be prevented through vaccination? (2011)
A) AIDS and cancer
B) Malaria and AIDS
C) Typhoid and cancer
D) Measles and mumps

Q.157 Treatment by using attenuated cultures of bacteria is called: (2014)
A) Chemotherapy
B) Sterilization
C) Antisepsis
D) Vaccination

Q.158 Vaccination is: (2017-Retake)
A) Natural active immunity
B) Natural passive immunity
C) Artificial active immunity
D) Artificial passive immunity

Q.159 Now a days every new born gets regular shots of vaccine for polio. It contains for polio to make a child immune against this disease. (2019)
A) Antisera
B) Antibodies
C) Antibiotics
D) Antigens

LYMPHATIC SYSTEM

Q.160 The flow of lymph in lymphatic vessels is maintained by: (2010)
A) Heart, activity of smooth muscles and valves
B) Activity of skeletal muscles, heart and breathing movements
C) Breathing movements, activity of skeletal muscles and valves
D) Exercise, breathing movements and heart

Q.161 **Largest lymph duct called thoracic lymph duct drains into:** (2011)
Large lymph vessels ultimately form larger lymph duct, which drains its lymph into: (2019)
A) Subclavian vein
B) Renal vein
C) Pulmonary vein
D) Hepatic portal vein

Q.162 **The lymphatic vessels of the body empty the lymph into the blood stream at the:** (2013)
A) Bile duct
B) Abdominal vein
C) Sub-clavian vein
D) Jugular vein

Q.163 **Thoracic lymph duct of the lymphatic system opens into:** (2017)
A) Superior vena cava
B) Subclavian vein
C) Inferior vena cava
D) Renal vein

ANSWER KEY

1.	C	21.	B	41.	D	61.	C	81.	D	101.	B	121.	C	141.	C	161.	A
2.	C	22.	B	42.	C	62.	D	82.	B	102.	A	122.	C	142.	A	162.	C
3.	B	23.	A	43.	B	63.	A	83.	D	103.	B	123.	D	143.	C	163.	B
4.	A	24.	B	44.	A	64.	A	84.	B	104.	B	124.	A	144.	B		
5.	B	25.	B	45.	B	65.	A	85.	A	105.	A	125.	D	145.	A		
6.	B	26.	C	46.	A	66.	C	86.	B	106.	D	126.	A	146.	A		
7.	C	27.	B	47.	A	67.	D	87.	D	107.	A	127.	C	147.	D		
8.	D	28.	D	48.	D	68.	D	88.	D	108.	D	128.	B	148.	A		
9.	B	29.	C	49.	C	69.	B	89.	B	109.	C	129.	B	149.	C		
10.	A	30.	D	50.	C	70.	A	90.	D	110.	C	130.	A	150.	B		
11.	B	31.	C	51.	B	71.	D	91.	B	111.	A	131.	C	151.	D		
12.	A	32.	D	52.	B	72.	A	92.	B	112.	B	132.	D	152.	A		
13.	D	33.	A	53.	D	73.	D	93.	D	113.	C	133.	B	153.	D		
14.	A	34.	C	54.	C	74.	C	94.	A	114.	C	134.	C	154.	A		
15.	A	35.	A	55.	A	75.	C	95.	A	115.	A	135.	B	155.	C		
16.	C	36.	B	56.	D	76.	D	96.	C	116.	A	136.	C	156.	D		
17.	B	37.	D	57.	D	77.	C	97.	D	117.	B	137.	D	157.	D		
18.	C	38.	C	58.	B	78.	A	98.	A	118.	D	138.	C	158.	C		
19.	D	39.	C	59.	A	79.	C	99.	D	119.	B	139.	B	159.	D		
20.	C	40.	C	60.	C	80.	C	100.	A	120.	A	140.	B	160.	C		

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PAST PAPER MCQs – 2021

Carnivorous plants/parasitic nutrition (pitcher plant, venus fly trap, sundew)

Q.1 The venous flower basket is also known as which of the following?
A. *Sycon* B. *Leucosolenia*
C. *Spongilla* D. *Euplectella*

Water and mineral uptake by roots, xylem and phloem

Q.2 The upward movement of sap by the xylem is:
A. Ascent of sap B. Plasmolysis
C. Deplasmolysis D. Guttation

Q.3 The attraction between water molecules and cell wall of xylem is termed as:
A. Cohesion B. Tension
C. Adhesion D. Imbibition

Q.4 Deficiency of which element causes yellowing in plants?
A. Magnesium B. Iron
C. Chlorine D. Oxygen

Q.5 Which of the following is incorrect for ascent of sap?
A. Water potential B. Cohesion tension
C. Root pressure D. Imbibition

Q.6 Stomata cover only what portion of the leaf surface?
A. 10% B. 50%
C. 1-2% D. 0.3 to 0.4%

Q.7 Which cells regulate the opening and closing of stomata?
A. Neutrophils B. Basophils
C. Guard cells D. Mesophyll cells

Q.8 Water vapors exit and carbon dioxide enters a leaf through:
A. Stomata B. Grana
C. Porphyrin ring D. Photons

Q.9 Which of these cells is not present in phloem?
A. Companion cell B. Sieve tube cells
C. Vessels D. Parenchyma

Q.10 The absorption of water through a compound without dissolving in it is known as:
A. Ascent of sap B. Plasmolysis
C. Imbibition D. Guttation

Q.11 The loss of liquid via the hydathodes is called:
A. Imbibition B. Guttation
C. Plasmolysis D. None of these

Q.12 Multisensory hydraulic valves are:
A. Stomata B. Lenticels
C. Guard cells D. Hydathodes

Q.13 Who proposal starch sugar hypothesis?
A. Sager B. Dixon
C. Mohl D. Drabs

Q.14 The movement of minerals or water via extracellular pathway is known as:
A. Symplast B. Apoplast
C. Vascular D. None of these

Q.15 Casparian strips are found in:
A. Epidermis B. Endodermis
C. Cortex D. Vascular bundle

Q.16 Guttation is caused due to:
A. Suppression of transpiration
B. Humidity
C. Root pressure
D. None

Q.17 Pressure flow theory was proposed by:
A. Ernst Munch
B. Van Neil
C. Hans Krebs
D. TH Morgan

Osmotic pressure/potential

Q.18 In osmosis water molecules move from area of:
A. Higher solute concentration to lower solute concentration
B. Lower solvent concentration to higher solvent concentration
C. Lower solute concentration to higher solute concentration
D. All of these

Higher solvent to lower potential

Q.19 The external solution having more concentration then the cell sap is known as:
A. Hypertonic solution
B. Hypotonic solution
C. Isotonic solution
D. Isotonic solution

Q.20 The total kinetic energy of water molecules is known as:
A. Water potential
B. Pressure potential
C. Osmotic potential
D. None of these

Cardiovascular system (including human heart structure, blood vessels)

Q.21 The osmotic pressure of blood is maintained by
A. Membrane proteins
B. Fibrous proteins
C. Plasma proteins
D. Myosin

Q.22 The number of stages involved in the heart beat is?
A. 2
B. 3
C. 4
D. 5

Q.23 The function of spleen is to filter_____.
A. Blood
B. Amniotic fluid
C. Semen
D. Lymph

Q.24 A 25 years old female with chronic fatigue was diagnosed with iron deficiency anemia and low blood count what is the cause of her fatigue?
A. Reduction in amount of Fe-S centers
B. Lowered production of water from the electron transport chain that cause dehydration
C. Iron is important for electron transport chain
D. Iron is important for NADH production

Q.25 Which of these is common in both lymph vessels and veins?
A. Both have small bore
B. Both have valves
C. Both have low blood pressure
D. Both are communicated

Q.26 Which one is thickest?
A. Left ventricle
B. Right ventricle
C. Left auricle
D. Right auricle

Q.27 Chordae tendineae are present in:
A. Aorta
B. Atrium
C. Ventricle
D. Vena cava

Q.28 Blood is collected from legs by:
A. Hepatic vein
B. Vena cava
C. Renal vein
D. Iliac veins

Q.29 The number of RBCs at high altitude will:
A. Increase in size
B. Increase in number
C. Decrease in size
D. Decrease in number

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Q.30 A circulatory system has --------- characteristics.
A. 1 B. 2
C. 3 D. 6

Q.31 Pressure is highest in:
A. Aorta B. Arteries
C. Capillaries D. Arterioles

Q.32 Papillary muscles extension are responsible for:
A. Bicuspid constriction B. Tricuspid constriction
C. Mitral constriction D. All of these

Q.33 _____ is a macromolecule found in blood.
A. Hemoglobin B. Plasma
C. Creatinine D. Plasmids

Q.34 Heart is enclosed in:
A. Pericardium B. Plural membrane
C. Mesentery D. Epimysium

Q.35 Pulse is found in:
A. Arteries B. Capillaries
C. Veins D. Both A and B

Q.36 Iliac arteries supply blood to:
A. Stomach B. Large intestine
C. Esophagus D. Gonads

Respiratory System

Q.37 The cluster of pouches opened from alveolar ducts is known as:
A. Bronchi B. Bronchioles
C. Pharynx duct D. Alveoli

Q.38 Which of the following is not respiration?
A. Breakdown of glucose B. Formation of glucose
C. Release of energy D. Exchange of gases

Q.39 A muscular passage that is common to both food and air is known as:
A. Bronchi B. Bronchioles
C. Larynx D. Pharynx

Q.40 The process of intake of oxygen and release of carbon dioxide is known as:
A. Respiratory exchange B. Gaseous exchange
C. Diffusion D. Osmosis

Q.41 Air contains what percentage of carbon dioxide?
A. 0.02-0.03 B. 0.03-0.04
C. 0.04-0.05 D. 0.05-0.06

Q.42 Which of these is functional unit of lungs?
A. Air sacs B. Alveoli
C. Bronchi D. Bronchioles

Q.43 What is correct about myoglobin?
A. It is iron containing protein pigment B. It occurs in muscle fibres
C. It also stores some oxygen D. All of these

Q.44 What is the intermediate part of the respiratory system between trachea and pharynx?
A. Glottis B. Voice box
C. Bronchi D. A and B

Q.45 Pleural membranes cover:
A. Brain B. Heart
C. Kidneys D. Lungs

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Q.46 The flap like structure found on larynx is called:
A. Glottis B. Vocal cords
C. Larynx D. Epiglottis

Q.47 Lungs are porous due to the presence of:
A. Bronchi B. Alveoli
C. Terminal bronchiole D. Respiratory bronchiole

Q.48 Pick the odd one out:
A. Heart B. Life
C. Kidney D. Lungs

Q.49 The covering of lungs is termed as:
A. Pleural membrane B. Myocardium
C. Pericardium D. Both B and C

Q.50 The space inside the chest cavity during inspiration is:
A. Decreased B. Increased
C. Remains same D. First increased then decreased

Q.51 Which is not true about human lungs?
A. They are opened sacs B. They are closed sacs
C. They are spongy in nature D. They are placed in chest cavity

Q.52 The function of vocal cords is to help in:
A. Voice production B. Energy production
C. Glucose production D. Air production

Q.53 The factor which affect the oxygen saturation of hemoglobin:
A. CO_2 B. Temperature
C. pH of blood D. All of these are correct

Q.54 Intercostal muscles are found in:
A. Ribs B. Pharynx
C. Lungs D. Both B and C

Q.55 Amount of oxygen in inspired air is 21 % while in expired air is:
A. 0.11 B. 0.12
C. 0.15 D. 0.16

Q.56 The wall of chest cavity is composed of:
A. Intercostal muscles B. ribs
C. Both and A and B D. Diaphragm

Q.57 A surfactant plays its role by:
A. No effect on surface tension B. Increasing surface tension
C. Decreasing surface tension D. None of these

Q.58 The cartilage protects the trachea from:
A. Collapsing B. Vibrating
C. Swelling D. Breaking

Q.59 The thick muscular structure which is present below the pair of lungs is known as:
A. Pharynx B. Diaphragm
C. Bronchi D. None of these

Q.60 The floor of the chest is called:
A. Alveoli B. Trachea
C. Bronchi D. None of these

Q.61 What is the length of the windpipe?
A. 12 cm B. 15cm
C. 18 cm D. 20 cm

Q.62 Select the phase/s of breathing:
A. Inhalation
B. Exhalation
C. Both and A and B
D. Vocal waves

Q.63 The smaller tubes within the chest cavity having cartilaginous plates are known as
A. Pharynx
B. Bronchioles
C. Bronchi
D. Both B and C

Q.64 What is the human breathing rate during hard physical work?
A. 10 to 15 times per minute
B. 10 to 20 times per minute
C. 80 to 120 times per minute
D. 30-40 times per minute

Q.65 Each air-sac consists of several microscopic single layered structures called:
A. Bronchioles
B. Windpipe
C. Bronchi
D. Alveoli

Q.66 In human, the total inside capacity of lungs is about:
A. 3.5 liters
B. 2.5 liters
C. 4 liters
D. 6 liters

Q.67 Which of these does not contain cartilage?
A. Bronchioles
B. Larynx
C. Trachea
D. Bronchi

Q.68 A surfactant is a secretory product that is composed of:
A. Protein and disaccharide
B. Protein and lipid
C. Lipid and carbohydrate
D. Carbohydrate and vitamins

Q.69 What is the breathing rate in humans during exercise?
A. 15-20 times per minute
B. 30 times per minute
C. 20 times per minute
D. 10-20 times per minute

Q.70 The epiglottis, a flap of tissues covers the:
A. Pharynx
B. Larynx
C. Glottis
D. Nasal cavity

Q.71 How many pair of ribs are present in chest wall?
A. 10
B. 11
C. 12
D. 13

Q.72 Which of these is not involved in respiration?
A. Lungs
B. Trachea
C. Glucagon
D. Bronchi

Q.73 A surfactant is essential for:
A. Efficient gas exchange
B. Both A and C
C. Maintaining structural integrity of alveoli
D. None of these

Q.74 Trachea is also termed as:
A. Voice box
B. Epiglottis
C. Bronchi
D. Windpipe

Q.75 Which pigment protein is also known as muscle haemoglobin?
A. Melanin
B. Myoglobin
C. Rhodopsin
D. Lutein

Q.76 Which of the following is the key function of pleural cavity?
A. Reduces friction between membranes
B. Slide easily on one another
C. Allows membrane to adhere on one another
D. All of these are correct

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Q.77 During transport of carbon dioxide, blood does not become acidic due to:
A Blood buffer
B Neutralization of H_2CO_3 by Na_2CO_3
C. Absorption by leukocytes
D. Non-accumulation

Q.78 The oxygen and carbon dioxide crosses the plasma membrane by the process of?
A. Active diffusion
B. Facilitated diffusion
C. Passive diffusion
D. Random diffusion

Q.79 Maximum capacity of hemoglobin to absorb oxygen is:
A. 19.6ml/100 ml blood
B. 25 ml/100 ml blood
C. 30 ml/100 ml blood
D. 20 ml/100 ml blood

Q.80 Most carbon dioxide is transported in the form of:
A. Carboxyhaemoglobin
B. Plasma proteins
C. Bicarbonate ions
D. In dissolved form

Q.81 In nostrils, the substance which moistens and keep the incoming air warm is called:
A. Bronchi
B. Mucous
C. Pharynx
D. Glottis

Q.82 Each nasal cavity is subdivided into _____ passageways in man.
A. 1
B. 2
C. 3
D. 4

Q.83 A series of C shaped cartilage rings are found in the wall of:
A. Epiglottis
B. Trachea
C. Bronchi
D. None of these

Q.84 Air enters the nasal cavity through:
A. Lungs
B. Bronchi
C. Trachea
D. Nostrils

Q.85 The structures with a diameter less than 1mm are:
A. Bronchioles
B. Bronchi
C. Alveoli
D. Air sac

Q.86 Which product is formed when carbon dioxide combines with amino group of haemoglobin?
A. Carboxyhemoglobin
B. Plasma proteins
C. Bicarbonate ions
D. Histamines

Q.87 The process through which organisms get oxygen for their cells from their surrounding environment is known as:
A. Respiratory exchange
B. Diffusion
C. Gaseous exchange
D. Osmosis

Q.88 Carbonic anhydrase is found in:
A. R.B.C
B. Parabronchi
C. Pleura
D. None of these

Q.89 The inflammation of bronchi or bronchioles is known as:
A. Emphysema
B. Pneumonia
C. Asthma
D. Bronchitis

Q.90 Breathing is considered as a:
A. Chemical process
B. Biochemical process
C. Mechanical process
D. Both A and B

Q.91 Glottis is lined with:
A. Plasma membrane
B. Mucous membrane
C. Meninges
D. Epithelial membrane

Q.92 The carbon dioxide transported in the form of carbonate ions is:
A. 30%
B. 50%
C. 70%
D. 95%

Q.93 Hemoglobin can carry:
A. 1 molecule of oxygen
B. 2 molecules of oxygen
C. 3 molecules of oxygen
D. 4 molecules of oxygen

Q.94 The infection of lungs is called:
A. Emphysema
B. Asthma
C. Pneumonia
D. Bronchitis

Q.95 The disease characterized by the breakdown of alveoli is called:
A. Asthma
B. Tuberculosis
C. Emphysema
D. A and B

Q.96 How many compounds of tar of tobacco smoke are included in causing cancer?
A. 2
B. 8
C. 5
D. More than 10

Q.97 The inside of the lungs is damaged in:
A. Emphysema
B. Lung cancer
C. Tuberculosis
D. Asthma

Q.98 Asthma releases a compound named as:
A. Histamine
B. Heparin
C. Epinephrine
D. Antibodies

Q.99 Loss of lung tissue is caused by:
A. Emphysema
B. Asthma
C. Pneumonia
D. Bronchitis

Q.100 Cancer expands systematically by:
A. Locally
B. Systemic
C. Metastasis
D. Invasion

Q.101 The respiratory disorder in which cells division takes place without any control and causes tumors is known as:
A. Emphysema
B. Asthma
C. Lung cancer
D. Bronchitis

Q.102 What is the main cause of lung cancer?
A. Smoking
B. Cough
C. Pollutants
D. Mutagens

Q.103 The bronchitis is of types?
A. 2
B. 4
C. 3
D. 5

Digestive system

Q.104 Pancreatic zymogens are only activated when they reached at?
A. Stomach
B. Pancreas
C. Small intestine
D. Large intestine

Q.105 The nodules of lymphoid tissue found in the wall of the intestinal tract are termed as:
A. Grave's region
B. Peyer's patches
C. Hashimoto's nodes
D. DiGeorge's nodes

Q.106 Zymogen cells secrete:
A. Pepsinogen
B. Mucus
C. HCL
D. Intrinsic factor

Q.107 It is not produced by duodenum:
A. Cholecystokinin
B. Secretin
C. Mucus
D. Biliverdin

Q.108 Salivary amylase acts on:
A. Starch
B. Cellulose
C. Protein
D. Lipid

Q.109 Trypsinogen is activated to trypsin by:
A. Kinases
B. HCL
C. Mucus
D. Enterokinase

Q.110 Cells that lower pH of stomach:
A. Mucous
B. Chief
C. Zymogen
D. Parietal

Q.111 Erypsin works on:
A. Polypeptide
B. Dipeptide
C. Peptone
D. All

Q.112 After stomach, digestion occurs in:
A. Small intestine
B. Cecum
C. Colon
D. Rectum

Q.113 Which is true about pepsin?
A. It is produced in inactivated form
B. It is produced form esophagus
C. It requires basic medium
D. It is an apoenzyme

Q.114 Secretion of secretin is forced by:
A. Food from stomach
B. Bile form liver
C. Pancreatic juice
D. All of these

Q.115 Botulism is severe form of:
A. Anemia
B. Food poisoning
C. Beriberi
D. Constipation

Q.116 Loss of weight takes place due to:
A. Anorexia nervosa
B. Bulimia nervosa
C. Both A and B
D. Constipation

Q.117 Which enzyme is found in saliva?
A. Pepsin
B. Lipase
C. Ptyalin
D. Lactase

Q.118 Its length is 2.4m and comprises 2/5 of small intestine.
A. Ileum
B. Jejunum
C. Duodenum
D. None of these

Q.119 Pair of salivary glands located behind the jaws is called
A. Sublingual gland
B. Submaxillary glands
C. Parotid glands
D. Adrenal glands

Q.120 A condition with abnormal amount of fats is called:
A. Anorexia
B. Botulism
C. Piles
D. Obesity

Q.121 Largest gland in human body:
A. Liver
B. Adrenals
C. Thymus
D. Parotid

Q.122 Largest part of large intestine:
A. Rectum
B. Colon
C. Caecum
D. Appendix

Q.123 What is the length of duodenum in cm?
A. 15-20
B. 20-25
C. 21-25
D. 25-30

Q.124 Which of the following would most greatly increase the activity of an enzyme functioning in the small intestine?
A. Decrease the temperature
B. Increase the amount of substrate
C. Decrease the pH
D. Increase the amount of enzymes

Q.125 What is the pH of fresh HC1?
A. 1.5
B. 5-7
C. 2-3
D. 4-5

Q.126 In the intestine, the branches of lymph capillaries, within villi, are called:
A. Lacteals
B. Lymph
C. Lymphatic vessels
D. Lymph nodes

Q.127 Bacteria live in human body for enzymatic source and vitamin:
A. Enterococcus
B. Pseudomonas
C. Campylobacter
D. Spirochete

Q.128 The semi solid mass in stomach is known as:
A. Bolus
B. Chyme
C. Serum
D. Food

Q.129 Choose the function irrelevant to oral cavity:
A. Grinding
B. Digestion
C. Lubrication
D. Absorption

Q.130 Lipid emulsification is done by:
A. Pancreatic juice
B. Bile
C. Gastric juice
D. Intestinal juice

Q.131 Incomplete or imperfect digestion is known as which of the following?
A. Obesity
B. Anorexia nervous
C. Bulimia nervous
D. Dyspepsia

Immune & system

Q.132 The deficiency of which of the following cause the immunodeficiency?
A. Hypoxanthine-guanine transferase
B. Xanthine oxidase
C. PRPP synthetase
D. Adenosine deaminase

Q.133 What is true about T-Cells?
A. A type of lymphocytes
B. Present in blood and work as defence
C. They kill the foreign invader
D. All

Q.134 Pathogens inside body are killed by:
A. Antibodies
B. Immune system cells
C. Interferon
D. All of these

Lymphatic system

Q.135 A fluid in transit between interstitial fluid and the blood:
A. Synovial fluid
B. Pleural fluid
C. Amniotic fluid
D. Lymph

Q.136 The number of efferent lymph vessels in a lymphatic system is:
A. 1
B. 2
C. 3
D. Numerous

Q.137 Tonsils are related to:
A. Lymphatic system
B. Blood circulatory system
C. Nervous system
D. Defense system

Q.138 Slow rate of peristalsis causes:
A. Diarrhoea
B. Constipation
C. Vomiting
D. All of these

Q.139 Amount of lymph produced per day is:
A. 2 to 3 liter
B. 7 to 8 liter
C. 8 to 12 liter
D. None

Q.140 Lymph nodes may be located in the human body in the tissues of:
A. Stomach
B. Brain
C. Thyroid gland
D. Groin and neck

Q.141 The flow of lymph is always towards:
A. Pancreatic duct
B. Thoracic duct
C. Bile duct
D. Parotid dust

Q.142 Lymph capillaries join together form larger lymph vessels, that gives rise to:
A. Thoracic duct
B. Lymph duct
C. Thoracic lymph duct
D. Sperm duct

Q.143 Lymphatic system consists of all the following except:
A. Lymph nodes
B. Blood
C. Lymphatic vessels
D. Lymph

Q.144 The function of lymph node is to filter_____.
A. Blood
B. Lymph
C. Semen
D. Amniotic fluid

Q.145 Thymus is found in human body _____.
A. In the medulla oblongata
B. In the mediastinum if the upper thorax
C. Both A & B
D. None

Q.146 Which of these is correct about thoracic duct?
A. It arises in the vessels of the brain
B. It drains the entire body above the diaphragm
C. It empties its contents into the subclavian vein
D. It carries blood into the lymphatic system

Q.147 Lymph vessels transfer the lymph into blood through:
A. Subclavian artery
B. Subclavian vein
C. Iliac artery
D. Iliac vein

Q.148 Lymphoid masses present in the wall of:
A. Digestive track
B. Sub Mucosa
C. Mucosa
D. All of these

Out of the Syllabus

Q.149 The space between the overtopped dichotomous branches was occupied by a sheet of which cells during evolution of megaphylls?
A. Sclerenchyma
B. Parenchyma
C. Collenchyma
D. Chlorenchyma

Q.150 There are how many stomata per square cm of leaf surface in Tobacco plants?
A. 10000
B. 12000
C. 15000
D. 20000

Q.151 Which element has function in opening and closing of stomata?
A. K
B. Mg
C. Cu
D. Fe

Q.152 Chlorosis, which is represented by yellowish hue on the leaves results from which of the following?
A. Accumulation of toxic waste products in leaves
B. Deficiency of chlorophyll
C. Short supplies of mineral nutrients in the soil
D. All of these

Q.153 Cell turgidity is caused by:

A. Endosmosis
B. Exosmosis
C. Plasmolysis
D. Active transport

Q.154 It is a detritus feeder:

A. Leech
B. Earthworm
C. Hook worm
D. Pin worm

Q.155 Autoimmune diseases act at the principal of:

A. Self against self
B. Self against antigens
C. Antigens self-destroyed
D. Antigens against self

Q.156 Thick, waxy & leathery cuticle around leaves is present in which of the following?

A. Hydrophytes
B. Mesophytes
C. Halophytes
D. Xerophytes

ANSWER KEY

1	D	21	C	41	B	61	A	81	B	101	C	121	A	141	B
2	A	22	B	42	A	62	C	82	C	102	D	122	B	142	B
3	C	23	A	43	D	63	C	83	B	103	A	123	D	143	B
4	A	24	C	44	D	64	D	84	D	104	C	124	D	144	B
5	A	25	B	45	D	65	D	85	A	105	B	125	A	145	B
6	C	26	A	46	D	66	D	86	A	106	A	126	A	146	C
7	C	27	C	47	B	67	A	87	C	107	D	127	A	147	B
8	A	28	D	48	B	68	B	88	A	108	A	128	B	148	A
9	C	29	B	49	A	69	B	89	D	109	D	129	D	149	B
10	C	30	C	50	B	70	B	90	C	110	D	130	B	150	B
11	B	31	A	51	A	71	C	91	B	111	C	131	D	151	A
12	C	32	D	52	A	72	C	92	C	112	A	132	D	152	B
13	B	33	A	53	D	73	B	93	D	113	A	133	D	153	A
14	C	34	A	54	A	74	D	94	C	114	A	134	B	154	B
15	B	35	A	55	D	75	B	95	C	115	B	135	D	155	A
16	C	36	D	56	C	76	D	96	D	116	C	136	A	156	D
17	A	37	D	57	C	77	A	97	A	117	C	137	A		
18	C	38	B	58	A	78	C	98	A	118	B	138	B		
19	A	39	D	59	B	79	D	99	A	119	B	139	A		
20	A	40	B	60	D	80	C	100	C	120	D	140	D		

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UNIT 10

PRACTICE EXERCISE

PROKARYOTES (KINGDOM MONERA)

1. **Heat sensitive compounds like antibodies seras and hormones can be sterilized by means of:**
   A) Radiations
   B) Chemicals
   C) Membrane filters
   D) Dying
2. **Maintaining the microbial population at constant level is called:**
   A) Microbistatic approach
   B) Microbicidal approach
   C) Bactericidal approach
   D) Antenatal approach
3. **When coccus divides in three planes, it will produce a:**
   A) Sarcina
   B) Tetrad
   C) Streptococcus
   D) Staphylococcus
4. **These bacteria very rarely have flagella:**
   A) Cocci
   B) Bacilli
   C) Spirilli
   D) Repulsion
5. **Bacteria can also detect and move in response to chemical signals. This type of behavior is called:**
   A) Chemotropism
   B) Chemotaxis
   C) Locomotion
   D) Repulsion
6. **Thick, rigid spiral bacterium:**
   A) Spirochaete
   B) Pseudomonas
   C) Spirillum
   D) Rhizobium
7. **Which is not present in bacteria?**
   A) Peptidoglycan
   B) rRNA
   C) Histones
   D) Teichoic acid
8. **A slippery outer covering in some bacteria that protects them from phagocytosis by host cells is:**
   A) Slime
   B) Flagellum
   C) Cell wall
   D) Peptidoglycan
9. **A bacillus bacterium with a single flagellum at one end is described as:**
   A) Monotrichous
   B) Lophotrichous
   C) Amphitrichous
   D) Peritrichous
10. **The structure which contains the gene for drug resistance in bacteria are**
    A) Nucleoids
    B) Mesosomes
    C) Chromatin Bodies
    D) Plasmids
11. **Antibiotics that kill microbes immediately are called**
    A) Microbistatic
    B) Microbicidal
    C) Biostatic
    D) Chemotherapeutic
12. **Mesosomes are infoldings of the cell membrane and are involved in**
    A) DNA replication
    B) RNA synthesis
    C) Protein synthesis
    D) Metabolism
13. **Which statement about bacteria is true:**
    A) Gram positive bacteria have more lipids in their cell wall
    B) Gram negative bacteria have more lipids in their cell wall
    C) Lipids are absent in cell wall of both gram positive and negative bacteria
    D) Both have equal amount of lipids

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14. **During favourable conditions, certain bacteria produces:**
A) Ribosomes C) Mitochondria
B) Plasmids D) Spores

15. **These are hollow, non-helical, filamentous appendages:**
A) Flagella C) Trichomes
B) Pili D) Plasmids

16. **Many bacteria are motile due to presence of:**
A) Flagella C) Cilia
B) Pilli D) Microtubules

17. **Cell wall is only absent in:**
A) Archaeobacteria C) Mycoplasma
B) Eubacteria D) Cyanobateria

18. **The plasma membrane of bacteria differs from that of eukaryotes in having:**
A) Steroid C) Cholesterols
B) Respiratory enzymes D) Phospholipids

19. **Following are the various names for nucleoid, EXCEPT:**
A) Nuclear body C) Nuclear region
B) Chromatin body D) Nucleus

20. **Following are the forms of mesosomes EXCEPT:**
A) Vesicles C) Lamellae
B) Tubules D) Squares

21. **Moist heat cause _____ and kill the microbes:**
A) Oxidation of proteins C) Degeneration of nucleic acids
B) Coagulation of proteins D) Bursting up of cells

22. **Diameter of E. coli is _____ to _____ micrometer:**
A) 1.1-1.5 C) 1.1-1.6
B) 2.0-4.0 D) 2.0-6.0

23. **Some _____ occasionally reach the length of 500 micrometer:**
A) Spirochetes C) Streptococci
B) Diplococci D) Cocci

24. **Killing bacteria from a living surface by using some chemical substance is called:**
A) Antisepsis C) Disinfestation
B) Disinfection D) Chemotherapy

25. **The structure used for sexual contact between bacteria is/are:**
A) Flagella C) Mesosome
B) Plasmid D) Pili

26. **Pick up the component which is comparatively in greater amount in Gram –ve cell wall:**
A) Lipids C) Teichoic acid
B) Peptidoglycan D) Lipoteichoic acid

27. **Certain electromagnetic radiations below _____ nm are effective in killing of microorganisms:**
A) 100 C) 300
B) 200 D) 400

28. **Which of the following is not found in all bacteria?**
A) Cell membrane C) Ribosomes
B) A nucleoid D) Capsule

29. **Important vectors in modern genetic engineering are __**
A) Plasmid C) Nucleoid
B) Mesosome D) Ribosome

30. **Pili are made of special protein called ___**
A) Pilin
B) Tubulin
C) Flagellin
D) Myosin

31. **Square of four cocci is_____.**
A) Tetrad
B) Sarcina
C) Diplococcus
D) Streptococci

32. **Syphilis is caused by:**
A) Spirochaete
B) Nostoc
C) Water blooms
D) Cyanobacteria

33. **_____ is an invagination of cell membrane which helps in cell division.**
A) Fimbriae
B) Nucleoid
C) Mesosome
D) Endospore

34. **Cell wall structure of a cell of unknown origin was studied and was found to contain polysaccharide chain linked with short chains of amino acid. What do you think it can be?**
A) Bacteria
B) Fungi Cell
C) Algae
D) Cortex cells

35. **Students were asked to give a guess about a unicellular organism with darkly stained nucleus. Which of the following can be straight away excluded from the list:**
A) Paramecium
B) Amoeba
C) Plasmodium
D) Lactobacillus

36. **Arrangement of coccus bacteria in chain is called:**
A) Streptococci
B) Staphylococci
C) Tetrad
D) Sarcina

37. **DNA of bacteria is present in:**
A) Nucleoid
B) Nucleus
C) Mitochondria
D) Mesosome

38. **Rod-shaped bacteria are known as _____.**
A) Bacilli
B) Cocci
C) Vibrio
D) Sarcina

39. **Antibiotics act against:**
A) Bacterial Diseases
B) Allergies
C) Bacterial and Viral Diseases
D) Viral Diseases

40. **Treatment by using attenuated culture of bacteria is called _____.**
A) Chemotherapy
B) Sterilization
C) Antisepsis
D) Vaccination

41. **If lipopolysaccharides did not appear in the wall of bacteria on staining, then it will be known as _____.**
A) Gram positive
B) Gram positive & Gram negative
C) Gram negative
D) Capsule

42. **The flagella of bacteria are composed of:**
A) Pilin
B) Tubulin
C) Keratin
D) Flagellin

43. **CV-I complex is formed during Gram staining in:**
A) Mycoplasmas
B) Gram negative bacteria
C) Gram positive bacteria
D) Archaeobacteria

44. **Which of the following is not correct for bacterial flagellum?**
A) It arises from basal body
B) It is involved in chemotaxis
C) It is proteinaceous in nature
D) It is responsible for conjugation

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45. **It is responsible for drug resistance in bacteria:**
A) Slime
B) Plasmid
C) Capsule
D) Pili

46. **Which of the following are spiral-shaped bacteria?**
A) Cocci.
B) Bacilli
C) Pseudomonas.
D) Spirillum

47. **The entire cell wall of bacteria is often regarded as a single huge molecule or molecular complex called _____:**
A) Capsule
B) Secondary wall
C) Slime capsule
D) Saculus

48. **Which of the following contains peptidoglycan cell wall?**
A) Penicillium
B) Bacterium
C) Adiantum
D) Polytrichum

49. **Peptidoglycan or murein is a special or distinctive feature of cell wall in:**
A) Algae
B) Fungi
C) Bacteria
D) Plants

ANSWER KEY

1	C	11	B	21	B	31	A	41	A
2	A	12	A	22	A	32	A	42	D
3	A	13	B	23	A	33	C	43	C
4	A	14	D	24	A	34	A	44	D
5	B	15	B	25	D	35	D	45	B
6	A	16	A	26	A	36	A	46	D
7	C	17	C	27	C	37	A	47	D
8	A	18	B	28	D	38	A	48	B
9	A	19	D	29	A	39	A	49	B
10	D	20	D	30	A	40	D		

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PAST PAPER MCQs 2008 – 2020

BACTERIA

Introduction:

Q.1 The most ancient bacteria are: (UHS-Model Paper-2011)
A) Eubacteria.
B) Archaeobacteria.
C) Escherichia coli.
D) Streptococci.

Q.2 Which of the following is TRUE about the structure of atypical bacterium? (2020)
A) It has cell wall
B) It has cytoplasm
C) It has genetic material
D) All of these

Shapes:

Q.3 Which of the following are spiral shaped bacteria? (2008)
A) Cocci
B) Bacilli
C) Pseudomonas
D) Vibrio

Q.4 When the division of cells is in three planes, the arrangement is known as (2010)
A) Diplococcus
B) Sarcina
C) Streptococcus
D) Staphylococcus

Q.5 Students were asked to give a guess about a unicellular organism with darkly stained nucleus. Which one of the following can be straight away excluded from the list: (2017)
A) Paramecium
B) Amoeba
C) Plasmodium
D) Lactobacillus

Q.6 Rod shaped bacteria are known as: (2018)
A) Bacilli
B) Cocci
C) Spirilla
D) Spirocheates

Q.7 In which one of the following shapes, gut living symbiont *Escherichia coli* is found? (2017)
A) Round
B) Oval
C) Spiral
D) Rod

Q.8 Arrangement of coccus bacteria in chain is called: (2017-Retake)
A) Streptococci
B) Staphylococci
C) Tetrad
D) Sarcina

Flagella /Pili:

Q.9 Many bacteria are motile due to presence of: (2016)
A) Flagella
B) Pili
C) Cilia
D) Microtubules

Cell Envelope:

Q.10 Which statement about bacteria is true? (2013)
A) Gram positive bacteria have more lipids in their cell wall
B) Gram negative bacteria have more lipids in their cell wall
C) Lipids are absent in cell wall of both gram positive and gram negative bacteria
D) Both have equal amount of lipids

Q.11 Peptidoglycan or murein is a special or distinctive feature of cell wall in: (2014)
A) Algae
B) Fungi
C) Bacteria
D) Plants

Q.12 Find the characteristic true for Gram +ve bacteria: (2017-Retake)
A) Periplasmic space present in all
B) Less lipids than Gram -ve
C) Two major layers
D) Outer membrane present

Q.13 Cell wall structure of a cell of unknown origin was studied and found to contain polysaccharide chain linked with short chain of amino acid. What do you think it can be? (2017)

A) Bacteria
B) Fungi cell
C) Algae
D) Cortex cell

Q.14 If lipopolysaccharides did not appear in the wall of bacteria on staining then it will be known as _____ : (2018)

A) Gram positive
B) Gram positive & gram negative
C) Gram negative
D) Capsule

Nucleoid and Plasmids:

Q.15 _____ are used as important vectors in genetic engineering. (2009)

A) Ribosomes
B) Plasmids
C) Nucleoids
D) Mesosomes

Q.16 The structure which contain the gene for drug resistance in bacteria are: (2011)

A) Nucleoids
B) Mesosomes
C) Chromatin bodies
D) Plasmids

Q.17 DNA molecule in prokaryotes is: (2017)

A) Single, circular, double stranded molecule, not bounded by membrane
B) Double, circular molecule
C) Linear, double stranded molecule
D) Single, circular, double stranded molecule, membrane bound

Q.18 Nucleoid is a structure NOT found in: (2017)

A) *Campylobacter*
B) *Cyanobacteria*
C) *Spirochete*
D) Goblet cells

Q.19 DNA of bacteria is present in: (2017-Retake)

A) Nucleoid
B) Nucleus
C) Mitochondria
D) Mesosome

Ribosomes:

Q.20 Ribosomes present in prokaryotes are: (2017)

A) 80S
B) 60S
C) 50S
D) 70S

Mesosomes:

Q.21 Name the one involved in DNA replication: (2008)

A) Cysts
B) Mesosomes
C) Ribosomes
D) Spores

Q.22 Mesosomes are infoldings of the cell membrane and are involved in: (2012)

A) DNA replication
B) RNA synthesis
C) Protein synthesis
D) Metabolism

Q.23 _____ is an invagination of cell membrane which helps in cell division: (2016)

A) Fimbriae
B) Nucleoid
C) Mesosome
D) Endospore

Q.24 Functionally, mesosomes can be compared with: (2017)

A) Ribosomes
B) Mitochondria
C) Polysomes
D) Golgi bodies

CYSTS/SPORES

Q.25 During unfavorable conditions certain bacteria produce: (2015)

A) Ribosomes
B) Plasmids
C) Mitochondria
D) Spores

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Nutrition:

Q.26 Name the nutrition resulted by feeding on dead and decaying matter: (2008)

A) Saprophytic
B) Parasitic
C) Symbiotic
D) Both B & C

Respiration:

Q.27 Which of the following is aerobic bacterium? (2009)

A) *Spirochete*
B) *Cyanobacteria*
C) *E. coli*
D) *Pseudosomanas*

Reproduction:

Q.28 Bacterial 'death rate' is equal to 'birth rate; in: (2010)

A) Lag phase
B) Log phase
C) Death phase
D) Stationary phase

Q.29 Binary fission is a characteristic cell division NOT found in: (2017)

A) *Pseudomonas*
B) *Campylobacter*
C) *Euglena*
D) *E. coli*

Control:

Q.30 The bacteria that cause diseases in human beings, are called: (UHS-Model Paper-2011)

A) Photosynthetic bacteria.
B) Chemosynthetic bacteria.
C) Facultative bacteria.
D) Pathogenic bacteria.

Q.31 Pasteurization technique is widely used for preservation of: (2013)

A) Water
B) Milk products
C) Meat
D) Vaccines

Q.32 Treatment by using attenuated culture of bacteria is called. (2014)

A) Chemotherapy
B) Sterilization
C) Antisepsis
D) Vaccination

Q.33 Select a method which causes the oxidation of chemical constituent of a bacterial cell: (2020)

A) Steam
B) Dry heat
C) Filtration
D) Radiation

Antibiotics:

Q.34 Antibiotics act against: (2009)

A) Bacterial Diseases
B) Allergies
C) Bacterial and Viral Diseases
D) Viral Diseases

Q.35 Antibiotics that kill microbes immediately are called: (2011)

A) Microbistatic
B) Microbicidal
C) Biostatic
D) Chemotherapeutic

Q.36 Chemicals produced by microorganisms which are capable of destroying the growth of microbes are called: (2012)

A) Antigen
B) Bacteriocidal
C) Antiseptics
D) Antibiotics

Q.37 Most wide spread problem of the antibiotic misuse is the: (2012)

A) Rapid cure
B) Increased resistance in pathogens
C) Disturbance of metabolite
D) Immunity

Q.38 Antibiotics are produced by fungi and certain bacteria of group: (2013)

A) *Oomycetes*
B) *Ascomycetes*
C) *Actinomycetes*
D) *Basidiomycetes*

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UNIT-10

Q.39 **Which one of the following antibiotic causes permanent discoloration of teeth in young children if it is misused?** (2014)

A) Penicillin
B) Streptomycin
C) Sulphonamide
D) Tetracycline

Cyanobacteria:

Q.40 **Name the structure in cyanobacteria which are helpful in fixing atmospheric Nitrogen:** (2008)

A) Heterocyst
B) Nostoc
C) Akinetes
D) Hormogonia

ANSWER KEY

1.	B	11.	C	21.	B	31.	B
2.	D	12.	B	22.	A	32.	D
3.	D	13.	A	23.	C	33.	B
4.	B	14.	A	24.	B	34.	A
5.	D	15.	B	25.	D	35.	B
6.	A	16.	D	26.	A	36.	D
7.	D	17.	A	27.	D	37.	B
8.	A	18.	D	28.	D	38.	C
9.	A	19.	A	29.	C	39.	D
10.	B	20.	D	30.	D	40.	A

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PAST PAPER MCQs – 2021

Cellular Structure of bacteria

Q.1 Cyanobacteria have which of the following type of cell wall?
A. Gram positive
B. Gram negative
C. Cellulose
D. Acid fast

Q.2 In a bacterial cell, plasma membrane with all things present within it is called:
A. Cytoplasmic matrix
B. Cytoplasm
C. Protoplast
D. Cell Structure

Q.3 Prokaron means before nucleus is word of_____ language.
A. Dutch
B. Greek
C. Roman
D. Spanish

Q.4 Microbiologist place bacteria in following major categories:
A. Archaeobacteria and vibrio bacteria
B. Eubacteria and Streptococcus
C. Eubacteria and archaeobacteria
D. Cyanobacteria and archaeobacteria

Q.5 The Prokaryotic Life is characterized by
A. Absence of locomotion
B. Absence of nuclear envelope
C. Absence of Protein
D. Absence of nuclear material

Q.6 All of the following are characteristics of prokaryotic cells except?
A. Unicellular
B. Lack of membrane-bound organelle
C. Lack of a nucleus
D. They are usually found in protists and fungi

Q.7 Which of the following structures helps cyanobacteria to move?
A. Flagella
B. Capsule
C. Gas vesicles
D. None of these

Q.8 What is the strengthening material of the prokaryotic cell wall?
A. Cellulose
B. Chitin
C. Silica waxes and lignin
D. Peptidoglycan or murein

Q.9 What is not a part of protoplasm?
A. Capsule of bacteria
B. Nucleus
C. Cell membrane
D. Mitochondria

Q.10 The gram positive bacteria appear which colour under gram staining?
A. Purple
B. Red
C. Pink
D. Blue

Q.11 In Prokaryotes, _____ are involved in respiration.
A. Mesosomes and cell membrane
B. Cell membrane and ribosome
C. Mesosomes and ribosomes
D. All of Above

Q.12 Methicillin-resistant Staphylococcus aureus is an antibiotic-resistant "superbug" that can cause deadly infections in humans. What would these Gram-positive bacteria look like under a microscope?
A. Purple spheres
B. Clear rods
C. Pink rods
D. Purple spirals

Q.13 The filamentous appendages called pili are present only on:
A. Gram - Positive bacteria
B. Gram - Negative bacteria
C. Chemosynthetic bacteria
D. None of above

Q.14 The mode of reproduction for cyanobacteria is which of the following?
A. Mitosis
B. Binary fission
C. Meiosis
D. Conjugation

Q.15 Which of the following is found in bacterial cells, but not in mature red blood?
A. Nucleus
B. DNA
C. Cell membrane
D. Mitochondria

Q.16 A bacterium with tuft of flagella at both poles is called?
A. Lophotrichous
B. Peritrichous
C. Monotrichous
D. Amphitrichous

Q.17 The most common waste material produced by bacteria is?
A. Lactic acid
B. Urea
C. Ammonia
D. Uric acid

Q.18 Which of the following contains genes for drug and disease resistance in bacteria?
A. Plasmid
B. Nucleotide
C. Mesosomes
D. All of these

Q.19 Archaeobacteria can survive at which of the following temperature? (Celsius)
A. 300
B. 120
C. 150
D. 200

Q.20 Pili are hollow appendages in bacteria that are used for:
A. Motility
B. Conjugation
C. Chemical detection
D. None of above

Q.21 Which of following is not considered as basic shape of a bacterium
A. Cocci
B. Filamentous
C. Spiral
D. Bacilli

Q.22 Cell wall is only absent in which of the following group of bacteria?
A. Staphylococci
B. *Pseudomonas*
C. *Diplococcus pneumonia*
D. *Mycoplasmas*

Q.23 In what category of bacteria does Neisseria most likely fall?
A. Cocci
B. Bacilli
C. Spirochete
D. None of these

Q.24 Which of the following structure is not present in all bacteria?
A. Cell membrane
B. Chromatin
C. Ribosome
D. Capsule

Q.25 Which of the following is not a method of genetic recombination in bacterium?
A. Conjugation
B. Transformation
C. Transduction
D. Binary Fission

Q.26 Which of the following bacteria do not commonly have flagella?
A. Cocci
B. Bacilli
C. Streptobacillus
D. Vibrio

Q.27 What allows bacteria to stain positively with gram stain?
A. The bacteria is anaerobic
B. The bacterial sample was pretreated with 3% ethanol
C. The bacteria's periplasmic space
D. The bacteria's thick peptidoglycan cell walls

Q.28 The process of recombination in prokaryotes takes place in which of the following ways?
A. Transformation
B. Conjugation
C. Transduction
D. All of these

Q.29 The flagella originate from which part of the cell?
A. Basal body
B. Cell membrane
C. Cell wall
D. Capsule

Q.30 Those bacteria which are fully dependent upon their host for nutrition are called?
A. Heterotrophic bacteria
B. Saprotrophic bacteria
C. Chemosynthetic bacteria
D. Parasitic bacteria

Q.31 Flagella are basically composed of?
A. Protein
B. Enzyme
C. Chemical
D. None of above

Q.32 Which of the following would not be found in a prokaryotic cell?
A. Mitochondria
B. RNA
C. Ribosomes
D. Plasma membrane

Q.33 Which of the following characteristics make plasmid DNA useful for researchers?
A. Readily incorporate cloned DNA
B. Capable of autonomous replication
C. Capable of being isolated from genomic DNA
D. All of these

Q.34 Characteristic of prokaryotic cells?
A. Absence of membrane bound cell organelles
B. Absence of nucleus
C. Presence of 70S ribosomes
D. All of these

Q.35 Which of the following would not be observed in a bacterial cell?
A. DNA
B. Golgi apparatus
C. Cell membrane
D. Ribosomes

Q.36 The function of cell wall in prokaryotes is:
A. To give cells rigidity
B. To give specific shape
C. To protect from osmotic lysis
D. All of the above

Q.37 True bacteria are termed as:
A. Eubacteria
B. Archaeobacteria
C. Cyanobacteria
D. None of above

Q.38 The presence of peptidoglycan in Gram positive bacteria is:
A. 40% of dry weight
B. 50% of dry weight
C. 10% of dry weight
D. 80% of dry weight

Q.39 Which of the following is true of both bacterial conjugation and meiosis?
A. Both processes produce four haploid cells
B. Both processes are a form of asexual reproduction
C. Both processes involve genetic recombination
D. None of these

Q.40 A type of bacterial cell that completely surrounded by flagella is called:
A. Diplococcus
B. Tetrad
C. Peritrichous
D. Monotrichous

Q.41 Which of the following is heat resistant organelle?
A. Spores
B. Cysts
C. Granules
D. All of Above

Q.42 Which of the following is false about conjugation?
A. It forms a bridge between two bacterial cells
B. It involves transport of genetic material via vectors
C. It is a form of sexual reproduction
D. Both B and C

Q.43 For respiratory metabolism, bacterial cell membrane contains:
A. Proteins
B. Lipids
C. Enzymes
D. Chemicals

Q.44 What is the name of the region where double-stranded single circular DNA is found in the prokaryotic cell?
A. Proton Nucleus
B. Nucleus
C. Nucleoplasm
D. Nucleoid

Q.45 What is true for pili and flagella like structures of bacteria:
A. Both are same in size
B. Both are involved in locomotion
C. Both are composed of proteins
D. All of Above

Q.46 Which of the following structure provides greater pathogenicity to the bacteria?
A. Slime
B. Cell wall
C. Cell membrane
D. Capsule

Q.47 The presence of which of these cell structures would confirm that the cell is prokaryotic?
A. Cytoplasm
B. Ribosomes
C. Flagella
D. Peptidoglycan cell wall

Q.48 In prokaryotic cells, ribosomes are of?
A. 50S + 40S
B. 80S
C. 60S + 40S
D. 70S

Q.49 Cell wall of a bacterial cell is more permeable in:
A. Gram positive bacteria
B. Gram negative bacteria
C. Both A & B
D. Mycoplasmas

Q.50 Which of the following is a form of asexual reproduction in prokaryotic cells?
A. Binary fission and mitosis
B. Binary fission and meiosis
C. Binary fission and transformation
D. Binary fission

Q.51 The cell wall of Archaeobacteria does not contain which of the following?
A. Glycoproteins
B. Polysaccharides
C. Proteins
D. Peptidoglycan

Q.52 Which of the following is most responsible for bacterial cell motility?
A. Cilia
B. Flagella
C. Pili
D. Pseudopodia

Q.53 Chromatin body in prokaryotes can also termed as:
A. Nuclear body
B. Nuclear region
C. Nucleoid
D. All of Above

Q.54 Cyanobacteria help in nitrogen fixation since they have:
A. Heterocyst
B. Hormogonia
C. Akinetes
D. Mesosomes

Q.55 Protein named as pilin is present in:
A. Flagella
B. Pili
C. Capsule
D. Slime

Q.56 Periplasmic space is absent in:
A. Gram positive bacteria
B. Gram negative bacteria
C. Both and B
D. None

Q.57 Which part of bacteria is most delicate and damage can kill bacterial cell immediately?
A. Cell wall
B. Cell membrane
C. Slime
D. Capsule

Q.58 It occupies position near center of cell:
A. Chromosome
B. Plasmid
C. Nucleoid
D. Mitochondria

Q.59 Which is present in every bacterium?
A. Cell wall
B. Slime
C. Cell membrane
D. Capsule

Q.60 Cyanobacteria are related to eukaryotes in having:
A. PS1
B. PSII
C. Both A and B
D. None

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Q.61 Which organelle is of prokaryotic origin?
A. Mitochondria
B. Chloroplast
C. Both A and B
D. None of the above

Q.62 Spores are resistant to:
A. Antibodies
B. Environmental stress
C. Disinfectants
D. All of these

Q.63 Cyanobacteria move by:
A. Gas vesicles
B. Gliding motility
C. Flagella
D. Both A and B

Q.64 Purple non-sulphur is an example of:
A. Photosynthetic bacteria
B. Heterotrophic bacteria
C. Saprotrophic bacteria
D. Chemosynthetic bacteria

Q.65 Which of the following type of bacterial replication is most similar to mitosis?
A. Transduction
B. Binary fission
C. Conjugation
D. Transformation

Q.66 Example of bacterial requiring low concentration of oxygen is:
A. Spirochete
B. *E. coli*
C. *Pseudomonas*
D. *Campylobacter*

Q.67 Bacteria that live in humus are _____.
A. Saprophytic
B. Anaerobic
C. Aerobic
D. Facultative

Q.68 Cyanobacteria are _____ in nature.
A. Autotroph
B. Heterotroph
C. Decompose
D. None

Q.69 All bacterial species have this organelle in common:
A. Ribosome
B. Flagella
C. Pili
D. Cell wall

Q.70 Aerobic bacteria release:
A. Sulphur
B. Oxygen
C. CO_2
D. Hydrogen

Q.71 Bacteria without flagella are called:
A. Atrichous
B. Amphitrichous
C. Lophotrichous
D. Peritrichous

Q.72 E. coli is a:
A. Facultative
B. Anaerobic
C. Gram negative
D. All of these

Q.73 Which true prokaryotes is a photosynthetic bacterium?
A. Cyanobacteria
B. *Nostoc*
C. *Chlorella*
D. *E. coli*

Q.74 The structure of prokaryote which is involved in attachment:
A. Pili
B. Flagella
C. Cell wall
D. Outer membrane

Q.75 Cyanobacteria undergo photosynthesis with help of:
A. Phycobilisome
B. Mesosomes
C. Spores
D. Cytoplasmic granule

Shape and size of bacteria

Q.76 Streptobacillus is basically a:
A. Single cell
B. Chain of bacilli
C. Pairs of bacilli
D All of Above.

Q.77 The several distinct arrangements of cocci is based on their
A. Long chain of cells
B. Planes of division
C. Grape like clustered shape
D. All of Above

Q.78 In cocci, three plane division results in the formation of sarcina which is a:
A. Cube of 8 cocci
B. Square of 4 cocci
C. Irregular structure
D. Triangular 6 cocci

Q.79 Division of cocci in three planes results in formation of:
A. Sarcina
B. Tetrad
C. Grape like clusters
D. All of above

Q.80 The size of Spirochete is approximately?
A. 0.75-1.25 um
B.100-200 nm
C. 0.1 -600 um
D. 500 um

Q.81 Spiral shaped bacteria is:
A. *E. coli*
B. *Vibrio*
C. *Mycoplasma*
D. *Bacillus*

Q.82 A huge microorganism, Acanthurus nigrofuscus is a_____ discovered in intestine of brown surgeonfish.
A. Bacterium
B. Virus
C. Parasite
D. Protozoa

Q.83 Group of 8 cocci bacteria is called?
A. Diplococci
B. Streptococcus
C. Tetrad
D. Sarcina

Q.84 Which of the following has a chain-like arrangement?
A. Streptobacillus
B. Streptococci
C. Both A and B
D. None of these

Q.85 Which of the following bacteria possesses a spherical shape?
A. Bacillus anthracis
B. Escherichia coli
C. Spirillum minus
D. Staphylococcus aureus

Q.86 Coccobacillus has a shape similar to which of the following?
A. Egg
B. Rod
C. Ball
D. None of these

Q.87 Which is a spiral shape bacteria?
A. *Spirochete*
B. E. coli
C. *Pseudomonas*
D. *Streptococcus*

Q.88 Which of the following bacteria is equal to the size of hyphen?
A. *Epulopiscium fishelsoni*
B. *Pseudomonas aeruginosa*
C. *Escherichia coli*
D. *Streptococcus pneumoniae*

Importance and control of bacteria

Q.89 Chemical substances used on living tissues that inhibit the growth of microorganism are called?
A. Disinfectant
B. Sanitizer
C. Antibiotic
D. Antiseptics

Q.90 Approximately how many species of bacteria are known to cause diseases in humans?
A. 100
B. 150
C. 200
D. 250

Q.91 Discoloration of teeth is due to misuse of:
A. Tetracycline
B. Ampicillin
C. Kanamycin
D. Erythromycin

Q.92 For sterilization, _____ are used.
A. UV rays B. IR rays
C. Gamma rays D. X-rays

Q.93 Deafness is caused by excess use of:
A. Tetracycline B. Streptomycin
C. Levofloxacin D. Erythromycin

Q.94 Bacteria play important role in:
A. Nitrogen cycle B. Carbon cycle
C. Urea cycle D. Water cycle

Q.95 For sterilization, which of the following is used:
A. Dry heat B. Moist heat
C. Gamma rays D. All of these

Q.96 Pesticide and insecticides are made up of:
A. Physical agents B. Biological agents
C. Chemical agents D. All of these

Q.97 Removal of a parasite from the body of the host is called:
A. Sterilization B. Disinfection
C. Disinfestation D. None of these

Q.98 What is the main role of bacteria?
A. CO_2 cycle B. Nitrogen cycle
C. Phosphorus cycle D. All of above

Out of Syllabus

Q.99 Who coined the term Animalcules for microorganisms like Bacteria and protozoa?
A. Robert Koch B. Louis Pasteur
C. Alexander Fleming D. Leeuwenhoek

Q.100 Rapid growth at exponential rate occurs in which phase of bacterial growth?
A. Lag B. Log
C. Stationary D. Decline

Q.101 Which of the following refers to the region of RNA responsible for binding ribosomes during prokaryotic translation?
A. TATA box B. Promoter
C. Terminator D. Shine-Dalgarno sequence

Q.102 Compound Microscope was first used by:
A. A.V. Leeuwenhoek B. Pasture
C. Janssen and Hans D. None of these

Q.103 Which of the following will not survive in the presence of oxygen?
A. Constitutive anaerobe B. Facultative anaerobe
C. Constitutive aerobe. D. Obligate anaerobe

Q.104 Which of the following statement is incorrect regarding germ theory of diseases postulated by Robert Koch?
A. A specific organism can always be found in association with a given disease
B. The organism can be isolated and grown in pure culture in the laboratories
C. It is possible to recover the organism in pure culture from the experimentally infected animals.
D. The pure culture cannot produce the disease when inoculated into susceptible animal

Q.105 Example of bacteria requiring low concentration of oxygen is:
A. *Spirochete* B. *Escherichia*
C. *Pseudomonas* D. *Campylobacter*

Q.106 Robert Koch discovered bacteria that cause:

A. Tuberculosis and Typhoid
B. Tuberculosis and Cholera
C. Tuberculosis and Measles
D. All of Above

Q.107 Microscope's ability to distinguish between separate objects that are close together is called?

A. Magnification
B. Resolving power
C. Contrast
D. Scanning power

Q.108 The nitrifying bacteria are an example of which of the following?

A. Heterotrophic bacteria
B. Saprotrophic bacteria
C. Chemosynthetic bacteria
D. Parasitic bacteria

ANSWER KEY

1	B	21	B	41	A	61	C	81	B	101	D
2	C	22	D	42	D	62	D	82	A	102	A
3	B	23	A	43	C	63	D	83	D	103	D
4	C	24	D	44	D	64	A	84	C	104	D
5	B	25	D	45	C	65	B	85	D	105	D
6	D	26	A	46	A	66	D	86	A	106	B
7	C	27	D	47	D	67	A	87	A	107	B
8	D	28	D	48	D	68	A	88	A	108	C
9	A	29	A	49	A	69	A	89	D		
10	A	30	D	50	D	70	C	90	C		
11	A	31	A	51	D	71	A	91	A		
12	A	32	A	52	B	72	D	92	C		
13	B	33	D	53	D	73	A	93	B		
14	B	34	D	54	A	74	A	94	A		
15	B	35	B	55	B	75	A	95	D		
16	D	36	D	56	D	76	B	96	C		
17	A	37	A	57	B	77	B	97	C		
18	A	38	B	58	C	78	A	98	D		
19	B	39	C	59	C	79	A	99	D		
20	B	40	C	60	B	80	D	100	B		

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UNIT 11

PRACTICE EXERCISE

REPRODUCTION

1. **Which one of the following is the correct matching of the events occurring during menstrual cycle?**
   A) Menstruation : Breakdown of myometrium and ovum fertilized
   B) Proliferative phase : Rapid regeneration of myometrium and maturation of Graafian follicle
   C) Ovulation : LH and FSH attain peak level and sharp fall in the secretion of progesterone
   D) Secretory phase : Development of corpus luteum and increased secretion of progesterone

2. **The mammalian corpus luteum produces**
   A) Estrogen
   B) Progesterone
   C) Luteotropic hormone
   D) Luteinizing hormone

3. **The release of ovum from Graafian follicles takes place during ….. day**
   A) $12^{th} - 14^{th}$
   B) $14^{th} - 16^{th}$
   C) Last 2 days of menstrual cycle
   D) $8^{th} - 10^{th}$

4. **Withdrawal of which of the following hormones is the immediate cause of menstruation?**
   A) Estrogen
   B) FSH – RH
   C) FSH
   D) Progesterone

5. **In human female, ovulation occurs during menstrual cycle:**
   A) At the end of proliferative phase
   B) In the middle of secretory phase
   C) Just before the end of secretory phase
   D) In the beginning of proliferative phase

6. **Secretion of progesterone by corpus luteum is initiated by:**
   A) MSH
   B) LH
   C) Testosterone
   D) Thyroxine

7. **Correct sequence of hormone secretion from beginning of menstruation is:**
   A) FSH, progesterone, estrogen
   B) Estrogen, FSH, progesterone
   C) FSH, estrogen, progesterone
   D) Estrogen, FSH, progesterone

8. **One of the following is a haploid cell:**
   A) Primordial germ cell
   B) Oogonium
   C) Primary oocyte
   D) Secondary oocyte

9. **Onset of menstruation of human female is called:**
   A) Menopause
   B) Puberty
   C) Gestation
   D) Menarche

10. **The hormone that prepares and maintains the uterus during secretary phase is secreted by:**
    A) Corpora cardiaca
    B) Corpus luteum
    C) Corpora albicans
    D) Graafian follicle

11. **Polar bodies are formed during**
    A) Somatic hybridization
    B) Spermatogenesis
    C) Oogenesis
    D) Spermiogenesis

12. **Chromosome number is halved during:**
    A) Formation of first polar body
    B) Formation of second polar body
    C) Meiosis – II
    D) Division of secondary oocyte

13. **Onset of menstruation is due to**
    A) Fall in level of progesterone
    B) Increase in oestrogen level
    C) Increase in FSH level
    D) Decrease in oxytocin level

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14. **The difference between primary and secondary spermatocyte lies in_____.**
A) Presence /absence of a tail
B) Number of chromosomes
C) Being hormone producing/non-hormone producing
D) Primary gamete/secondary gamete in males

15. **Secondary spermatocytes give rise to**
A) Diploid spermatids
B) Haploid sperm
C) Diploid sperm
D) Haploid spermatid

16. **After entry of sperm into cytoplasm of ovum which of the following event takes place?**
A) Mitotic division of secondary oocyte
B) Meiotic division of primary oocyte
C) Mitotic division of secondary oocyte
D) Meiotic division of secondary oocyte

17. **It is a glandular yellow body developed from the Ruptured follicles _____:**
A) Corpus luteum
B) Follicle atresia
C) Primary follicles
D) Oogonium

18. **The right sequence of stages during menstrual cycle:**
A) Follicular stage → luteal stage → ovulation → menstrual
B) Follicular → ovulation → menstrual → luteal
C) Follicular → ovulation → luteal → menstruation
D) Menstrual → luteal → ovulation → follicular

19. **Internal linings of uterus are called:**
A) Myometrium
B) Perimetrium
C) Endometrium
D) Epimetrium

20. **Which statement is incorrect?**
A) Syphilis is caused by virus
B) Syphilis affects eyes, bones, joints, CNS
C) Genital herpes produces genital soreness and ulcers
D) Gonorrhea is caused by gram negative bacterium

21. **The stage in human female when menstrual cycle ceases at the age of 50 is known as:**
A) Ovopause
B) Menarche
C) Menopause
D) Menstruation

22. **The number of spermatids formed from four secondary spermatocytes are:**
A) 4
B) 8
C) 16
D) 32
2 + 2 + 2 + 2

23. **The structure which receives ovulated oocyte and the site where generally fertilization occur:**
A) Fallopian tube
B) Uterine tube
C) Proximal part of oviduct
D) Proximal part of oviduct, uterine tube & fallopian tube

24. **Which of the following STD is caused by obligative intracellular parasite?**
A) Gonorrhoa
B) Syphilis
C) Genital herpes
D) Genital herpes, AIDS

25. **Type of cells in human testes which produce testosterone is called:**
A) Interstitial cells
B) Germ cells
C) Sertoli cells
D) Spermatocytes

26. **Breakdown of endometrium during menstruation is due to:**
A) Increase in level of LH
B) Decrease in level of progesterone
C) Increase in level of FSH
D) Increase in level of estrogen

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27. **Leuteinizing hormone triggers:**
A) Cessation of oogenesis
B) Breakdown of oocytes
C) Ovulation
D) Development of zygote

28. **Syphilis is a sexually transmitted disease which is caused by:**
A) HIV / AIDS
B) Pseudomonas pyogenes
C) Treponema palladium
D) Neisseria

29. **Discharge of ovum, or secondary oocyte from ovary is called:**
A) Fertilization
B) Pollination
C) Follicle formation
D) Ovulation

30. **Second meiotic division in the secondary oocyte proceeds as far as:**
A) Metaphase
B) Prophase
C) Anaphase
D) Telophase

31. **Which one of the following differentiates directly into mature sperm?**
A) Primary spermatocyte
B) Secondary spermatocyte
C) Spermatogonia
D) Spermatid

32. **Uterus opens into vagina through:**
A) Cervix
B) Fallopian tube
C) External genitellia
D) Vulva

33. **Treponema palladium causes?**
A) AIDS
B) Genital herpes
C) Syphilis
D) Gonorrhea

34. **What is the location of interstitial cells in testes?**
A) Inside the seminiferous tubules
B) Between the seminiferous tubules
C) Among the germinal epithelial cells
D) Around the testes

35. **A type of cells in human testes which produce testosterone are called?**
A) Germ cells
B) Sertoli cells
C) Leydig cells
D) Spermatocytes

36. **The hormone produced from corpus luteum is?**
A) Prolactin
B) FSH
C) Progesterone
D) LH

37. **Causative agent of a sexually transmitted disease that affects mucous membrane of the urinogenital tract is:**
A) Staphylococcus aureus
B) Treponema pallidum
C) Neisseria gonorrhoeae
D) Escherichia coli

38. **Main duct of the male reproductive tract is:**
A) Seminiferous
B) Vas deferens
C) Ejaculatory duct
D) Urethra

39. **The sperms are discharged out through:**
A) Urinogenital duct
B) Sperm duct
C) Ejaculatory duct
D) Vas deferens

40. **Oogonia divide mitotically to form:**
A) Secondary oocytes
B) Primary oocytes
C) Infinite oogonia
D) Few oogonia

41. **These are enclosed in a group of follicle cells at time of birth:**
A) Oogonia
B) Primary oocytes
C) Secondary oocytes
D) Ova

42. **The events of the _____ involve the ovarian cycle and the uterine cycle:**
A) Life cycle
B) Menstrual cycle
C) Nitrogen cycle
D) Uterine cycle

43. **Proximal part of Vas deferens forms highly convoluted:**
A) Sperm duct C) Ejaculatory duct
B) Epididymis D) Urethra

44. **In human female, periodic reproductive cycle is completed in approximately:**
A) 30 days C) 28 days
B) 27 days D) 29 days

45. **For the formation of 32 spermatids and 16 ova the number of meiosis required is**
A) 4 and 16 C) 8 and 16
B) 4 and 8 D) 32 and 16

46. **Breakdown of endometrium during menstruation is due to**
A) Increase in Level of LH C) Increase in Level of Progesterone
B) Decrease in Level of Progesterone D) Increase in Level of Oestrogen

47. **The carriers may transmit such diseases to their healthy partners:**
A) Organic diseases C) Sexually transmitted diseases
B) Genetic diseases D) Congenital diseases

48. **The outermost layer of newly ovulated ovum is:**
A) Zona pellucida C) Chorioallantois
B) Corona radiata D) Amnion

49. **In events of ovarian cycle, ovulation occurs before:**
A) Maturation of follicle C) Regression of corpus luteum
B) Formation of early corpus luteum D) Development of follicle

50. **Whose secretion converts spermatid to sperm:**
A) Cowper's gland C) Seminal vesicle
B) Sertoli cells D) Leydig Cells

51. **Sperms are produced in the**
A) Seminiferous tubules C) Interstitial cells
B) Prostate gland D) Vas deferens

52. **Mature sperms are stored in the**
A) Seminiferous tubules C) Vas deferens
B) Epididymis D) Seminal vesicles

53. **When a mature egg leaves the ovary, it enters the**
A) Follicle C) Endometrium
B) Interstitial cells D) Oviduct

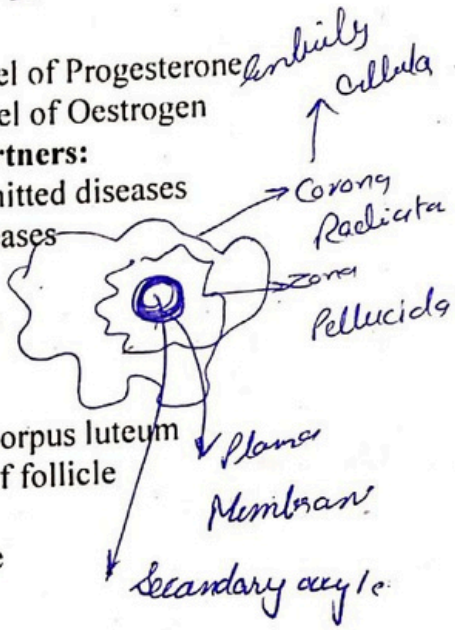
54. **The endometrium is the lining of the**
A) Bladder C) Vagina
B) Uterus D) Oviduct

55. **Spermatozoa are nourished during their development by**
A) Sertoli cells C) Intestinal cells
B) Connective tissue cells D) Mast cells

56. **Number of spermatozoa, a single primary spermatocyte ultimately produces in spermatogenesis, is**
A) One C) Two
B) Four D) Eight

57. **Which of the following is the largest in size?**
A) Mature sperm cell C) Mature egg cell
B) They are all approximately the same size D) Polar body

58. **Menstrual cycle begins with break down of the womb wall. The ovum or egg is released**
A) At the beginning of the cycle C) About half way through the cycle
B) About 20 days through the cycle D) At the end of the cycle



59. **In 28-days human ovarian cycle, ovulation occurs on**
A) Day 1 C) Day 10
B) Day 14 D) Day 28

60. **After ovulation endocrine part of ovary is**
A) Corpus luteum C) Corpus callosum
B) Corpus albicans D) Corpus spongiosum

61. **During pregnancy, the production of ova in ovary is prevented by**
A) Estrogen C) Relaxin
B) Progesterone D) Prolactin

62. **Menopause is the stage in human female when**
A) Menstruation starts
B) Menstruation stops and reproductive capacity is arrested
C) Puberty begins
D) None of the above

63. **Which of the following is used in most of the oral contraceptives?**
A) LH C) FSH
B) Androgen D) Progesterone

64. **Number of chromosomes in primary spermatocytes is**
A) Haploid C) Diploid
B) Triploid D) Polyploid

65. **50 secondary spermatocytes and 50 secondary oocytes will give rise to**
A) 50 sperms and 50 ova C) 200 sperms and 50 ova
B) 100 sperms and 50 ova D) 50 sperms and 100 ova

66. **Spermiogenesis is the process in which**
A) Spermatids change into spermatozoa
B) Dormant spermatozoa become active just before ejaculation
C) Spermatogonia produce spermatids
D) Spermatocytes give rise to spermatozoa

67. **Sperms move by their**
A) Tail C) Cilia
B) Mitochondria D) Acrosome

68. **In a mammalian sperm, spirally arranged mitochondria around an axial filament occurs in**
A) Middle piece C) Head
B) Principal piece of tail D) End piece of tail

69. **During spermatogenesis each primary spermatocytes forms four similar sperms whereas in oogenesis each primary oocytes forms**
A) Two similar secondary oocytes and two polar bodies
B) Three similar large mature ova and one polar body
C) Four large and similar ova
D) One large ovum and two or three polar bodies

70. **One of the minute cells, which separates from the animal egg during its maturation, is known as**
A) Primary spermatogonia C) Primary oogonium
B) Secondary oogonium D) Polar body

71. **How many sperms and ova will be produced from 25 primary spermatocytes and 25 primary oocytes respectively?**
A) 100 sperms and 25 ova C) 100 sperms and 30 ova
B) 50 sperms and 25 ova D) 100 sperms and 100 ova

72. **50 secondary oocytes in female and 50 secondary spermatocytes in male give rise to**
A) 100 ova and 100 sperms
B) 50 ova and 200 sperms
C) 200 ova and 50 sperms
D) 50 ova and 100 sperms

73. **Which one is not associated with gametogenesis?**
A) Formation of ova
B) Formation of spermatids
C) Change of spermatid to spermatozoa
D) Release of ova

74. **Mainly which type of hormones control the menstrual cycle in human beings?**
A) FSH
B) progesterone
C) LH
D) FSH, LH, Estrogen

75. **In uterus, endometrium proliferates in response to**
A) Relaxin
B) FSH
C) Oxytocin
D) Oestrogen

76. **Which of the following does not occur between 15-28-day of menstrual cycle?**
A) Premenstrual phase
B) Proliferative phase
C) Luteal phase
D) Secretory phase

77. **At menopause there is rise in urinary excretion of**
A) FSH
B) MSH
C) STH
D) LH

Because FSH rises to extreme level and it cannot be compensated by LH.

→ Because ovulation is due to LH↑ + FSH + Estrogen

78. **Energy centre of sperm is**
A) Head
B) Entire sperm
C) Middle piece
D) Tail

→ Mitochondria (spirally coiled)

+ Germinal epithelial cell.

79. **Function of Sertoli cells is controlled by**
A) Estrogen
B) Testosterone
C) FSH
D) ACTH

80. **In humans, at the end of the first meiotic division, the male germ cells differentiate into the:**
A) Spermatids
B) Secondary spermatocytes
C) Spermatozonia
D) Primary spermatocytes

81. **Sexual reproduction is a process during which**
A) All types of organism reproduce
B) Many cells of one type fuse with a single cell of another type
C) Nuclei of two speciallised cells fuse together
D) Parents produce genetically identical offspring

82. **On which date is a woman most likely to ovulate if the first day of menstrual loss was 1st February?**
A) 5th February
B) 28th February
C) 14th February
D) 1st March

83. **Which sequence of events is correct?**
First ⟶ last
A. Menstruation → ovulation → fertilisation → implantation
B. Menstruation → ovulation → implantation → fertilisation
C. Ovulation → menstruation → fertilisation → implantation
D. Ovulation → menstruation → implantation → fertilisation

84. **Sortoli cells are found in testis. Those cells are** / Mother cells
A) Nurse cells
B) Receptor cells
C) Reproductive cells
D) None of these

85. Major part of semen is secreted by
A) Seminal vesicle
B) Cowper's gland
C) Prostate gland
D) Bartholin's gland

86. The common duct formed by the union of vas deferens and duct from seminal vesicle is
A) Urethra
B) Spermatic duct
C) Oviduct
D) Ejaculatory duct

87. Which one is unpaired gland in male reproductive system?
A) Seminal vesicle
B) Prostate gland
C) Cowper's gland
D) Lacrimal gland

88. Which is the correct sequence of layers in the mammalian egg from outside to inside?
A) Zona pellucid, corona radiata, plasma membrane
B) Corona radiata, zona pellucida, plasma membrane
C) Plasma membrane, zona pellucida, corona radiata
D) None of the above

89. Which of the following hormones is active during proliferative phase of menstrual
A) Estrogen
B) Testosterone
C) Progesterone
D) All of these

90. Progesterone hormone is active during
A) Follicular phase
B) Menstrual phase
C) Secretory phase
D) Proliferative phase

91. Cessation of menstrual cycle is termed
A) Menarche
B) Impotency
C) Menopause
D) Puberty

92. The number of chromosomes in a mature gamete gets halved during
A) Meiosis II
B) Division of secondary oocyte and secondary spermatocyte
C) Formation of first polar body
D) Formation of second polar body

93. In which phase of cell division is oocyte arrested?
A) Interphase
B) Anaphase II
C) Prophase I
D) Both prophase I and II

94. In oogenesis, haploid egg is fertilized by sperm at which stage?
A) Ovum
B) Primary oocyte
C) Oogonium
D) Secondary oocyte

95. Some important events in the human female reproductive cycle are given below. arrange the events in the proper sequence
A–secretion of FSH,
B–growth of corpus luteum,
C–growth of the follicle and oogenesis,
D–ovulation
E–sudden increase in the levels of LH
A) ADCEB
B) ACEDB
C) BACDE
D) CADBE

96. What would happen if vasa differentia of man are cut?
A) Sperms are non-nucleate
B) Semen is without sperms
C) Spermatogenesis does not occur
D) Sperms are nonmotile

97. **Trace a sperm cell from the structure where it is produced to fertilization of the egg**
1. **Seminiferous tubules**
2. **Vas deferens**
3. **Uterus**
4. **Fallopian tube**
5. **Vagina**
6. **Epididymis**
7. **Urethra**

A) 6,1,2,7,5,3,4 C) 1,6,2,7,5,3,4
B) 1,6,2,7,5,4,3 D) 1,2,6,7,5,3,4

98. **How are the time of ovulation and the onset of menstruation related in the human menstrual cycle?**
A) Both are triggered by high luteinizing hormone "spikes" (sharp increase in concentration)
B) Ovulation occurs approximately 7 days after the first day of menstruation
C) Ovulation occurs approximately 14 days before the first day of menstruation
D) All of the above

99. **If the diploid number of human chromosomes is 46, how many chromosomes would you expect to find in a spermatogonium?**
A) 12 C) 23
B) 46 D) 92

100. **Leydig cells secrete:**
A) Testosterone C) Oestrogen
B) Corticosterone D) Progesterone

101. **Which of the following glands contributes a sugary secretion to human semen?**
A) Testis C) Prostate
B) Cowper's gland D) Seminal vesicles

102. **Human eggs are produced in the:**
A) Vagina C) Testes
B) Embryo sac D) Ovary

103. **The prostate gland plays a major role in the production**
A) Seminal fluid C) Sperm
B) Testosterone D) Urine

104. **Menarche is:**
A) The gradual decrease of menstruation C) The first menstrual flow
B) A type of reproductive surgery D) The first stage of labor

105. **The *direct* function of GnRH is to;**
A) Stimulate production of estrogen and progesterone
B) Initiate ovulation
C) Inhibit secretion of pituitary hormones
D) Stimulate secretion of LH and FSH

106. **Which of the following is secreted principally by the corpus luteum of the human ovary?**
A) Luteinizing hormone C) Follicle-stimulating hormone
B) Progesterone D) Testosterone

107. **In the male reproductive system, sperms are concentrated in:**
A) Rete testis C) Epididymis
B) Vas deferens D) Seminal vesicle

108. If for some reason, the vasa efferentia in the human reproductive system get blocked, the gametes will not be transported from:
A) Ovary to uterus
B) Testes to epididymis
C) Vagina to uterus
D) Epididymis to vas deferens

109. About which day in a normal human menstrual cycle does rapid secretion of LH (popularly called LH surge) normally occurs?
A) 14th day
B) 5th day
C) 20th day
D) 11th day

110. Conversion of spermatids into sperm is:
A) Spermiogenesis
B) Metamorphosis
C) Spermatogenesis
D) Gametogenesis

111. Spermatogenesis is influenced by:
A) progesterone
B) STH
C) LH
D) LTH

112. The phase of menstrual cycle in humans that last for 7-8 days, is:
A) Follicular phase
B) Teal phase
C) Ovulatory phase
D) Menstruation

113. Reduction division occurs in:
A) Spermatogonia
B) Secondary spermatocyte
C) Primary spermatocyte
D) Spermatid

114. What is the correct sequence of sperm formation?
A) Spermatogonia, spermatocyte, spermatid, spermatozoa
B) Spermatogonia, spermatocyte, spermatogonia, spermatozoa
C) Spermatogonia, spermatocyte, spermatozoa, spermatid
D) Spermatogonia, spermatozoa, spermatocyte, spermatid

115. Sertoli cells are found in:
A) Uriniferous tubules
B) Seminiferous tubules
C) Seminal vesicles
D) None of these

116. In spermatogenesis, reduction division of chromosome occurs during conversion of:
A) Spermatogonia, to primary spermatocytes
B) Secondary spermatocytes to spermatids
C) Primary spermatocytes to secondary spermatocyte
D) Spermatids to sperms

117. In human beings, normally in which one of following parts, does the sperm fertilize the ovum?
A) Cervix
B) Upper part of uterus
C) Fallopian tube
D) Lower part of uterus

ANSWER KEY

1	D	11	C	21	C	31	D	41	B	51	A	61	B	71	A	81	C	91	C	101	D	111	C
2	B	12	A	22	B	32	A	42	B	52	B	62	B	72	D	82	C	92	C	102	D	112	D
3	B	13	A	23	D	33	C	43	B	53	D	63	D	73	D	83	A	93	C	103	A	113	C
4	D	14	B	24	D	34	B	44	C	54	B	64	C	74	D	84	A	94	D	104	C	114	A
5	A	15	D	25	A	35	C	45	C	55	A	65	B	75	D	85	A	95	B	105	D	115	B
6	B	16	D	26	B	36	C	46	B	56	B	66	A	76	B	86	D	96	B	106	B	116	C
7	C	17	A	27	C	37	C	47	C	57	C	67	A	77	A	87	B	97	C	107	C	117	C
8	D	18	C	28	C	38	B	48	B	58	C	68	A	78	C	88	B	98	C	108	B		
9	D	19	C	29	D	39	A	49	B	59	B	69	D	79	C	89	A	99	B	109	A		
10	B	20	A	30	A	40	B	50	B	60	A	70	D	80	B	90	C	100	A	110	A		

PAST PAPER MCQs 2008 – 2020

REPRODUCTION

Q.1 Process ensuring the survival of species over long periods of time, even though individual members of the species die: (2018)

A) Respiration
B) Adaptability
C) Mitosis
D) Reproduction

Male Reproductive System & Spermatogenesis:

Q.2 The first cells produced by the repeated cell division of germinal epithelium of testis are: (2010)

A) Interstitial cells
B) Spermatogonia
C) Secondary spermatocytes
D) Spermatids

Q.3 Which one of the following hormones is essential for the successful production of sperms: (UHS-MODEL PAPER 2011)

A) LH (Luteinizing Hormone).
B) Gonadotropin hormone.
C) Testosterone.
D) Follicle stimulating hormone (FSH).

Q.4 A type of cells in human testes which produce testosterone is called: (2011,2013,2014)

A) Interstitial cells
B) Germ cells
C) Sertoli cells
D) Spermatocytes

Q.5 Which one of the followings differentiates or develops directly into mature sperm? (2012, 2017)

A) Primary spermatocyte
B) Secondary spermatocyte
C) Spermatogonia
D) Spermatid

Q.6 Spermatogonia differentiate directly into: (2013)

A) Secondary spermatocytes
B) Spermatozoa
C) Primary spermatocytes
D) Spermatids

Q.7 What is the location of interstitial cells in testis? (2013)

A) Inside the seminiferous tubules
B) Among germinal epithelial cells
C) Between the seminiferous tubules
D) Around the tests

Q.8 In human testis, which structure is responsible for carrying sperm from inside the testis? (2015)

A) Seminiferous tubules
B) Urinogenital duct.
C) Seminal vesicle
D) Vasa efferentia

Q.9 All of the following are the parts of male reproductive system except: (2017-Retake)

A) Epididymis
B) Seminiferous tublues
C) Cervix
D) Bulbourethral gland

Q.10 During spermatogenesis, the _____, which are haploid cells eventually mature into spermatozoa/mature sperms: (2019)

A) Secondary spermatocytes
B) Primary spermatocytes
C) Spermatogonia
D) Spermatids

Female Reproductive System & Oogenesis:

Q.11 The fertilization of ovum takes place in the proximal part of the: (UHS-MODEL PAPER 2011)

OR _____ is structure in female reproductive system where fertilization takes place OR In Human female egg is fertilized in: (2017,2018)

A) Uterus.
B) Oviduct.
C) Placenta.
D) Urethra.

Q.12 At which month of pregnancy the human embryo is referred to as the fetus: (UHS-MODEL PAPER 2011)

A) 3rd month.
B) 4th month.
C) 6th month.
D) 2nd month.

Q.13 Oogonia are produced in germ cells of: (2011)

A) Both uterus and cervix
B) Cervix
C) Uterus
D) Ovary

Q.14 Second meiotic division in the secondary oocyte proceeds as far as: (2012)

A) Metaphase
B) Prophase
C) Anaphase
D) Telophase

Q.15 Uterus opens into the vagina through: (2012)

A) Cervix
B) Fallopian tube
C) External genitilia
D) Vulva

Q.16 The oocyte released during ovulation is in: (2014)

A) Anaphase I
B) Prophase I
C) Metaphase I
D) Metaphase II

Q.17 Yellow glandular structure formed after the release of egg from follicle is called: (2014)

A) Corpus callosum
B) Graffian follicle
C) Corpus luteum
D) Follicle atresia

Q.18 In which part of female reproductive system fertilization takes place? (2015)

A) Proximal part of oviduct
B) Uterus
C) Placenta
D) Vagina

Q.19 Meiosis occurs in human females during: (2017-Retake)

A) Ovulation
B) Gametogenesis
C) Spermatogenesis
D) Spermiogenesis

Q.20 Which of the following hormone acts on the uterus wall for thickening? (2018)

A) Zona pellucida
B) Progesterone
C) Oxytocin
D) Follicle stimulating hormone

Q.21 Inside ovary, primary oocyte divides through first meiotic division forming two haploid cells, secondary oocyte and: (2019)

A) Polar body
B) Oogonium
C) Follicle cell
D) Ovum

MENSTRUAL CYCLE

Q.22 Which hormonal pair shares a common hypothalamic releasing factor? (2009)

A) STH and LH
B) ACTH and LH
C) FSH and STH
D) FSH and LH

Q.23 Which of the following will happen if fertilization does not occur? (2009)

A) Menopause starts
B) Corpus luteum degenerates
C) FSH secretion is increased
D) Progesterone secretion is increased

Q.24 Which of the following sequence is correct? (2010)

A) LH → FSH → Estrogen → Progesterone
B) FSH → LH → Progesterone → Estrogen
C) FSH → Estrogen → Progesterone → LH
D) FSH → Estrogen → LH → Progesterone

Q.25 Pregnancy is maintained by the: (UHS-MODEL PAPER 2011)

A) LTH (Luteotropic hormone).
B) Progesterone.
C) Corticosteroids.
D) LH and FSH.

Q.26 Breakdown of endometrium during menstruation is due to: (2011)

A) Increase in level of LH
B) Decrease in level of progesterone
C) Increase in level of progesterone
D) Increase in level of estrogen

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Q.27 Luteinizing hormone triggers: (2011)
A) Cessation of oogenesis
B) Breakdown of oocyte
C) Ovulation
D) Development of zygote

Q.28 Discharge of ovum or secondary oocyte from ovary or from Graffian follicle is called: (2012)
A) Fertilization
B) Pollination
C) Follicular atresia
D) Ovulation

Q.29 The hormone produced from corpus luteum is: (2013)
A) Prolactin
B) Follicle stimulating hormone
C) Progesterone
D) Luteinizing hormone

Q.30 On puberty, development of primary follicles is stimulated by: (2014)
A) ICSH
B) FSH
C) LH
D) Estrogen

Q.31 In females, FSH stimulates the ovary to produce: (2015)
A) Progesterone
B) Lactin
C) Oestrogen
D) Oxytocin

Q.32 In which phase of human female menstrual cycle, endometrium prepares for the implantation of embryo? (2015)
A) Proliferative phase
B) Menstrual phase
C) Secretary phase
D) Ovulation phase

Q.33 Events of menstrual cycle are regulated by the: (2016)
A) Ethylene
B) Gonadotropins
C) Auxins
D) Gibberellins

Q.34 Decrease of FSH and increase of estrogen cause pituitary gland to secrete: (2016)
A) Somatotropin
B) Luteinizing Hormone
C) Testosterone
D) Spermatogonium

Q.35 FSH stimulates the production of estrogen hormone which has two targets_____ and _____: (2017)
A) Uterus, posterior pituitary
B) Ovaries, uterus
C) Uterus, anterior pituitary
D) Ovaries, hypothalamus

Q.36 Which of the following hormone suppresses ovulation? (2017-Retake)
A) Progesterone
B) Insulin
C) F.S.H
D) Prolectin

Q.37 Which of the following hormone causes ovulation? OR (2017-Retake)
Which of the following hormone stimulates the ovulation from the follicle into oviduct? (2019)
A) L.H
B) Progesterone
C) Estrogen
D) F.S.H

Q.38 Which hormone causes the contraction walls of uterus during the process of birth? (2018)
A) STH
B) FSH
C) LTH
D) Oxytocin

Q.39 Which hormone is released in female in response to FSH from pituitary gland? (2018)
A) Oxytocin
B) ADH
C) Oestrogen
D) Progesterone

Q.40 Which hormonal pair would maintain the endometrium and make it receptive for implantation of embryo? (2019)
A) Luteinizing Hormone and Progesterone
B) Estrogen and Follicle Stimulating Hormone
C) Luteinizing Hormone and Follicle Stimulating Hormone
D) Estrogen and Progesterone

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Q.41 Which of the following hormones of the pituitary gland regulate the menstrual cycle? (2020)

A) Follicle stimulating Hormone and estrogen
B) Luteinizing hormone and estrogen
C) Follicle Stimulating Hormone and Luteinizing hormone
D) Estrogen and progesterone

Q.42 Which of the following represents the changes that occur in the ovary and the uterus approximately every 28 days involving evolution with the breakdown and loss of the lining of the uterus (2020)

A) Ovulation
B) Menstrual cycle
C) Uterine cycle
D) Embryo formation

SEXUALLY TRANSMITTED DISEASES (STD'S)

Q.43 Syphilis is a sexually transmitted disease which is caused by: (2008, 2011,2012, 2015)

A) *Neisseria gonorrhoeae*
B) Flatworm
C) *Treponema pallidum*
D) Herpes simplex

Q.44 Newborn infant may acquire serious eye infections, if his/her mother has: (2009)

A) Genital herpes
B) AIDS
C) Gonorrhea
D) Syphilis

Q.45 *Treponema pallidum* cause a disease (sexually transmitted) called: (UHS-MODEL PAPER 2011, 2013)

A) Genital Herpes.
B) AIDS.
C) Gonorrhoa.
D) Syphilis.

Q.46 Causative agent of a sexually transmitted disease that affects mucous membrane of the urinogenital tract is: (2014)

A) *Staphylococcus aureus*
B) *Treponema pallidum*
C) *Neisseria gonorrhea*
D) *Escherichia coli*

Q.47 Transmission of Neisseria gonorrhea is best described by which one of the following? (2016)

A) Oro-faecal route
B) Unsafe sex
C) Vector borne
D) Droplet infection

Q.48 Syphilis is caused by: (2016)

A) *Spirochaete*
B) *Nostoc*
C) Water blooms
D) *Cyanobacteria*

Q.49 AIDS is caused by: (2016)

A) Bacteria
B) Virus
C) Fungi
D) Alga

Q.50 Syphilis is a sexually transmitted disease and can also damage: (2017)

A) Hair
B) Heart
C) Peripheral nervous system
D) Birth canal

Q.51 Which of the following diseases is sexually transmitted? (2020)

A) Tuberculosis
B) AIDS
C) Dengue Fever
D) Cholera

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ANSWER KEY

1.	D	11.	B	21.	A	31.	C	41.	C	51.	B
2.	B	12.	A	22.	D	32.	C	42.	B		
3.	C	13.	D	23.	B	33.	B	43.	C		
4.	A	14.	A	24.	D	34.	B	44.	C		
5.	D	15.	A	25.	B	35.	C	45.	D		
6.	C	16.	D	26.	B	36.	A	46.	C		
7.	C	17.	C	27.	C	37.	A	47.	B		
8.	D	18.	A	28.	D	38.	D	48.	A		
9.	C	19.	B	29.	C	39.	C	49.	B		
10.	D	20.	B	30.	B	40.	D	50.	B		

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PAST PAPER MCQs – 2021

Male reproductive system

Q.1 In the male reproductive tract, sperm cells follow a specific path. Where sperm cells enter after traveling through the epididymis?
A. Urethra
B. Seminiferous tubules
C. Ejaculatory duct
D. Vas deferens

Q.2 The epididymis, vas deferens, and urethra are a series of ducts found in which body system?
A. Endocrine
B. Lymphatic
C. Digestive
D. Male reproductive

Q.3 Sperms are produced in:
A. Urethra
B. Pancreas
C. Sperm dust
D. Testis

Q.4 Spermatids differentiate into:
A. Spermatozoa
B. Mature sperms
C. Primary oocyte
D. Secondary spermatocyte

Q.5 The primary spermatocytes undergo meiotic division to form:
A. Spermatozoa
B. Secondary spermatocyte
C. Primary oocyte
D. Mature sperms

Q.6 Which one of the following is most likely to occur in a boy during puberty?
A. He produces eggs
B. His shoulders broaden
C. Color of his eyes changes
D. None of the above

Q.7 Protection and nourishment of sperms are provided by:
A. Fluid secreted by sertoli cells
B. Interstitial fluid
C. Fluid in scrotum
D. All of the above

Q.8 In mammalian male, the reproductive and excretory system share the same:
A. Vas deferens
B. Urinary bladder
C. Ureter
D. Urethra

Q.9 Human sperm moves by:
A. Flagella
B. Cilia
C. Pilli
D. All of these

Q.10 The sperm duct from each side passes into which of the following?
A. Ureter
B. Urethra
C. Testes
D. Abdominal cavity

Q.11 Sperms are developed at what temperature?
A. Lower than body temperature
B. Higher than body temperature
C. Body temperature
D. All of these

Q.12 What is the name of the tube that carries sperm and urine out of the human body?
A. Penis
B. Seminal vesicles
C. Urethra
D. Ureter

Q.13 The highly complex duct system in male is called:
A. Scrotum
B. Seminiferous tubules
C. Prepuce
D. Epididymis

Q.14 The cells that secrete testosterone
A. Nerve cells
B. Fat cells
C. Muscle cells
D. Interstitial cells

Q.15 Select the function/s of male reproductive system:
A. To produce enzymes
B. To transfer sperms to the female
C. To produce sperms
D. Both B and C are correct

Q.16 The spermatic cord and spermatic duct are?
A. Same
B. Different
C. Same in function
D. Same in location

Q.17 Fluid secreted by sertoli cells provides sperms with which of the following?
A. Liquid medium
B. Nourishment
C. Protection
D. All

Q.18 The sperm duct open into which of the following?
A. Ureter
B. Urethra
C. Testes
D. All of these

Q.19 All of the following statements are correct except:
A. The testicles produce millions of sperm.
B. Hormones are produced by the testicles.
C. Semen is produced in the seminal vesicles
D. All males are born with one testicle

Q.20 The scrotum is responsible for which of the following in the male reproductive system?
A. Synthesis of sperm
B. Lubrication
C. Nourishment of sperm
D. Temperature regulation

Q.21 Which of the following is not a true characteristic of spermatogonia?
A. They develop into primary spermatocytes through mitosis
B. They are undifferentiated
C. They are germ line cells
D. They are haploid

Q.22 The number of spermatids produced from primary spermatocytes is?
A. 1
B. 3
C. 3
D. 4

Q.23 Where does the human body store spermatozoa?
A. Ejaculatory duct
B. Seminal vesicle
C. Seminiferous tubules
D. Epididymis

Q.24 The male gonads are known as?
A. Testes
B. Testosterone
C. Ovaries
D. Ovum

Q.25 The hormone that is released from the testes is?
A. Progesterone
B. Estrogen
C. Testosterone
D. All of these

Q.26 Sperms are nourished and activated through?
A. Vas deferens
B. Prostate gland
C. Semen
D. All of these

Q.27 External genitalia of human male consist of a pair of testes which lie outside the body in the sac like?
A. Bag
B. Scrotum
C. Pouch
D. All of these

Q.28 Which of the following is found beneath the prostate gland?
A. Vas deferens
B. Seminal vesicle
C. Urethra
D. Cowper's gland

Q.29 Fluid secreted by three sets of glands combines with sperm to form:
A. Interstitial fluid
B. Semen
C. Amniotic fluid
D. Both A and B

Q.30 External male genitalia are:
A. A pair of testes
B. Seminiferous tubules
C. Male copulatory organ
D. Both A and C

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Q.31 In male reproductive system which gland neutralizes the pH of urethra?
A. Ejaculatory gland B. Prostate gland
C. Seminal vesicle gland D. Bulbourethral gland

Q.32 How many million sperms are produced in human per day?
A. 10 B. 20
C. 30 D. 400

Q.33 Sperm secrete which enzyme?
A. Acrosome B. Hyaluronidase
C. Lipase D. Both A and B

Q.34 Which of these transports sperm from the testis to the penis?
A. Sperm duct B. Sacrotum
C. Urethera D. Gamete

Q.35 What is a key difference between spermatogenesis and oogenesis?
A. Spermatogenesis results in only 1 sperm; oogenesis results in 4 eggs.
B. Spermatogenesis results in 2 sperm; oogenesis results in only 1 egg.
C. Spermatogenesis results in 8 sperm; oogenesis results in only 4 eggs.
D. Spermatogenesis results in 4 sperm; oogenesis results in only 1 egg

Female reproductive system (including menstrual cycle)

Q.36 Human embryo is called fetus from the beginning of?
A. 2nd month B. 3rd month
C. 4th month D. 5th month

Q.37 Fusion of male and female gametes is called:
A. Fertilization B. Implantation
C. Development D. Growth

Q.38 Ovum receive sperm at:
A. Animal pole B. Vegetal pole
C. Both A and B D. None of these

Q.39 Another name for the sex cell is:
A. Hormone B. Gamete
C. Zygote D. Testicle

Q.40 Follicular phase ranges from _____ days.
A. 1-5 B. 15-28
C. 11-15 D. 6-14

Q.41 During 6-28 days of menstrual cycle, _____ is thickened.
A. Epiderm B. Myometrium
C. Endometrium D. Epimetrium

Q.42 Secondary oocyte maturation takes place in:
A. Ovary B. Uterus
C. Cervix D. Fallopian tube

Q.43 Proliferative phase lasts for _____days.
A. 1-5 B. 5-13
C. 15-28 D. 16-18

Q.44 Placenta is established between:
A. Uterine and foetal tissues B. Uterine and cervix
C. Cervix and vagina D. Ovary and oviduct

Q.45 In 16-28 days _____ takes place.
A. Shedding to uterus B. Thickening of uterus wall
C. Development of follicle D. Implantation

Q.46 After fertilization the zygote increases in size and travels down the fallopian tube to become embedded in the walls of the womb. This process is called:
A. Ovulation
B. Conception
C. Implantation
D. Menstruation

Q.47 Which of these cycles operate in human females?
A. Oestrous cycle
B. Menstrual cycle
C. Both A and B
D. None of these

Q.48 Which does not occur in females at the puberty?
A. Voice deepens
B. Pubic hair growth
C. Hips broadens
D. Start of menstrual cycle

Q.49 Between the seminiferous tubules are interstitial cells which secrete which of the following hormone?
A. Progesterone
B. Oxytocin
C. Testosterone
D. Estrogen

Q.50 Development of primary follicles is induced by:
A. LH
B. Estrogen
C. FSH
D. Progesterone

Q.51 Labor pains are induced by:
A. Placenta disintegration
B. Distension of cervix
C. Secretion of oxytocin
D. Estrogen production

Q.52 Which of the following would not be expected during pregnancy?
A. Maintenance of the corpus luteum
B. Formation of the placenta
C. Blastocyst implantation
D. Formation of the corpus albicans

Q.53 In humans, fertilization involves the addition of chromosomes from the sperm and the egg. The resulting cell is called a?
A. Zygote
B. Egg
C. Embryo
D. Fetus

Q.54 Which characteristic is not in human girls if she is young?
A. Menopause
B. Menarche
C. Huge hips
D. Hairs

Q.55 Test tube helps in:
A. In vitro fertilization
B. In vivo fertilization
C. Both A and B
D. Ex vitro fertilization

Q.56 Sex is determined after:
A. 4-8 moths
B. 2-3 months
C. 6-8 moths
D. 8 months

Q.57 Lactation in stimulated by:
A. LTH
B. Lactogen
C. Placenta
D. ALL A, B, C

Q.58 In humans placenta is established by:
A. Hypothalamus
B. Progesterone
C. Thalamus
D. Estrogen

Q.59 The time in a woman's life when menstruation usually no longer occurs:
A. Late 50s
B. Mid 40s
C. Teens
D. Early 20s

Q.60 The organs that produce reproductive cells are known as?
A. Gametes
B. Gonads
C. Glands
D. Follicles

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Q.61 When a female ovulates, in what phase of division is the oocyte?
A. Anaphase I B. Prophase I
C. Metaphase I D. Metaphase II

Q.62 The number of chromosomes in a zygote are?
A. n B. 2n
C. 3n D. 4n

Q.63 The uterine tube opens into:
A. Ovary B. Ureters
C. Oviduct D. None of these

Q.64 Fertilization of ovum occurs during which of the following?
A. In uterus B. In ovary
C. In distal part of oviduct D. In proximal part of oviduct

Q.65 Which is the largest cell in the human body?
A. Macrophage B. Ovum
C. Granule cell D. None of These

Q.66 Oogenesis starts:
A. From puberty B. At menarche
C. At adult stage D. Before birth

Q.67 It does not occur in female during menstruation:
A. Breast enlargement B. Broadening of shoulder
C. Fatigue D. Bloating

Q.68 Disturbance in _____ may lead to miscarriage or premature birth.
A. LH B. Progesterone
C. FSH D. Estrogen

Q.69 The oviduct is also called as:
A. Fallopian tube B. Uterine tube
C. Both A and B D. Uterus

Q.70 Placenta is important as its function is to:
A. Exchange oxygen B. Exchange carbon dioxide
C. Exchange nutrients D. All A, B and C are correct

Q.71 In human female, the fertilized egg gets implanted in uterus:
A. After about 7 days of fertilization B. After about 30 days of fertilization
C. After about two months of fertilization D. After about 3 weeks of fertilization

Q.72 The union of meiotically produced specialized sex cells from each parents produce?
A. Fertilized egg B. Porifera
C. Zygote D. None of these

Q.73 2nd meiotic division in oocyte is completed during?
A. When ovum is discharged from the ovary B. Just before fertilization
C. Before the onset of menstruation D. When oocyte is fertilized by sperm

Q.74 The end or complete stop of the menstrual cycle is called:
A. Ovulation B. Menopause
C. Fertilization D. Menstruation

Q.75 Endometrium stimulation and vascularization is done by
A. Estrogen B. Progesterone
C. FSH D. LH

Q.76 The internal living of the uterus wall is called:
A. Endometrium B. Perimetrium
C. Corpus luteum D. None of these

Q.77 Which factors affect the female reproductive cycle?
A. Malnourishment
B. Emotional stress
C. Both A and B
D. None of these

Q.78 An egg is fertilized in laboratory and implanted in uterus for development. This is called:
A. Test tube baby
B. Cloning
C. In vitro fertilization
D. Both A and B

Q.79 Which one of the following is not part of the female reproductive system?
A. Ovary
B. Vagina
C. Urethra
D. Uterus

Q.80 Germ cells in the ovary produce many?
A. Spermatogonia
B. Oogonia
C. Zygospores
D. Eggs

Q.81 The proximal part of the oviduct is significant because:
A. Fertilization occurs here
B. Implantation occurs here
C. Placenta is established here
D. None of these

Q.82 Secondary oocyte is ovulated from:
A. Corpus luteum
B. Graafian follicle
C. Primary follicle
D. Germinal epithelium

Q.83 Which hormone is produced mainly by corpus luteum in the ovary following ovulation?
A. Progesterone
B. Chorionic gonadotrophic hormone
C. FSH
D. LH

Q.84 Nutrition to egg in ovary is provided by which of the following?
A. Germ cells
B. Milk cells
C. Follicle cells
D. All of these

Q.85 Uterus opens into the vagina through:
A. Uterus
B. Cervix
C. Oviduct (fallopian tube)
D. Ovary

Q.86 In a typical menstrual cycle of 28 days, what is the most likely fertile period?
A. Days 5 to 10
B. Days 1 to 5
C. Days 14 to 15
D. Days 11 to 14

Q.87 The discharge of ovum from ovary is called:
A. Lactation
B. Ovulation
C. Placenta formation
D. Menstruation

Q.88 Urethra and vagina have openings to the exterior:
A. Common
B. Independent
C. Both A and B
D. None of these

Q.89 What event occurs in the menstrual cycle when the level of progesterone declines?
A. Ovulation
B. Menstruation
C. Menopause
D. Fertilization

Q.90 Which cells produce oogonia in ovary?
A. Stromal cells
B. Epithelial cells
C. Germ cells
D. theca cells

Q.91 The period during which a girl sexually matures is called:
A. Menstrual cycle
B. Puberty
C. Childhood
D. Teens

Q.92 Average loss of blood during birth is about how many cm3?
A. 250
B. 300
C. 350
D. 400

Q.93 Gametes in animals are produced by which of the following?
A. Mitosis B. Meiosis
C. Fission D. All

Q.94 The uterus of the female reproductive system opens into the?
A. Placenta B. Birth canal
C. Cervix D. All of these

Q.95 During birth which of following act as birth canal?
A. Oviduct B. Ovary
C. Uterus D. Vagina

Q.96 The event happens in menstrual cycle when level of progesterone declines:
A. Ovulation B. Beginning of menses
C. Corpus luteum formation D. Maturation of ovarian follicle

Q.97 Which term refers to the formation of egg cells that begins in the developing ovaries of a female fetus?
A. Meiosis B. Ovulation
C. Fertilization D. Oogenesis

Q.98 Human embryo remains enclosed in:
A. Amniotic sac B. Amnion
C. Chorion D. Allantois

Q.99 The time when the sex organs start to become active is called:
A. The fertile period B. Adulthood
C. Pregnancy D. Puberty

Q.100 Which one of the following statements is incorrect?
A. Eggs in the ovaries ripen when they meet a sperm
B. Girls are born with thousands of eggs in their ovaries
C. Hormones control the release of the egg from the ovary
D. One egg is released from the ovary about every month

Q.101 Which of the following is not a true characteristic of gametocytes?
A. Male gametocytes are called spermatocytes
B. Gametocytes divide by mitosis into other gametocytes
C. Female gametocytes are called oocytes
D. They are eukaryotic somatic cells

Q.102 The human menstrual cycle generally repeats after how man days?
A. 20 days B. 28 days
C. 10 days D. 40 days

Q.103 The total gestation period (pregnancy) is usually about:
A. 28 days B. 250 days
C. 280 days D. 300 days

Q.104 Sexual characteristics in females develop during?
A. Menstruation B. Ovulation
C. Puberty D. Birth

Q.105 In female reproductive system, ovulation starts:
A. After menstruation B. After proliferative phase
C. After secretory phase D. Before proliferative phase

Q.106 Which of the following is not a secondary character in females?
A. Shoulders broaden B. Egg production
C. Enlarge breast D. None of these

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Q.107 Proliferative phase is also called:
A. Menstrual phase
B. Secondary phase
C. Secretory phase
D. None of these

Q.108 In human only one ovum is usually discharged from the ovary at one time this phenomenon is called?
A. Ovulation
B. Menstruation
C. Oestrous
D. All of these

Q.109 In which week of pregnancy organogenesis starts:
A. 12^{th}
B. 8^{th}
C. 14^{th}
D. 16^{th}

Q.110 During menstruation, which of the following sheds off?
A. Epimetrium
B. Endometrium
C. Both
D. Myometrium

Sexually Transmitted Diseases

Q.111 During birth central nervous system of infants can be damaged by:
A. Syphilis
B. Genital herpes
C. Gonorrhoea
D. HPV

Q.112 The sexually transmitted disease caused by *Treponema pallidum* is:
A. Syphilis
B. Gonorrhoea
C. Genital Herpes
D. AIDS

Q.113 Gonorrhoea is caused by _____.
A. Gram positive bacteria
B. *Neisseria gonorrhoea*
C. Both A and B
D. None

Out of Syllabus

Q.114 Which of the following is an ovoviviparous organism?
A. Reptiles
B. Mammals
C. Frog
D. Duckbill platypus

Q.115 The animals which involves development of embryo inside female body are called:
A. Internal fertilization
B. Viviparous
C. Oviparous
D. Both A & B

Q.116 Asexual reproduction requires only a single parental organism which gives rise to offspring by?
A. Meiotic cell division
B. Mitotic cell division
C. Both A and B
D. None of these

Q.117 Cryptorchidism is a condition where?
A. One of both testes are not developed
B. One or both testes fail to descend into the scrotum
C. One or both testes are not formed
D. None of these

Q.118 In viviparous animals:
A. External fertilization leads to embryo formation
B. Internal fertilization leads to embryo formation
C. External development leads to embryo formation
D. None of the above

Q.119 Off springs produced as a result of asexual reproduction are:
A. Similar to parents
B. Identical to parents
C. Different to parents
D. None of these

Q.120 Parthenocarpy is induced by:
A. Gibberellins B. Auxins
C. Cytokinins D. Abscisic acid

Q.121 Which is a viviparous?
A. Duck B. Goat
C. Frog D. Lizard

Q.122 In cloning, nucleus is implanted in:
A. Zygote B. Egg cell
C. Sperm D. Somatic cell

Q.123 Sperms have origin?
A. Ectodermal B. Mesodermal
C. Endodermal D. None of these

Q.124 Development of an egg into zygote without fertilization is called?
A. Parthenocarpy B. Apomixes
C. Parthenogenesis D. All of these

Q.125 In sexual reproduction, plants have diplohaplontic life cycle with alternating?
A. Haploid sporophyte and diploid gametophyte generations
B. Diploid sporophyte and diploid gametophyte generations
C. Haploid sporophyte and haploid gametophyte generations
D. Diploid sporophyte and haploid gametophyte generations

Q.126 A woman receives her X chromosome from:
A. Her mother only B. Both her mother and her father
C. Her father only D. Extra nuclear DNA in her mother's egg

Q.127 To overcome infertility, which technique is used:
A. In vitro fertilization B. In vivo fertilization
C. Both A and B D. None of these

Q.128 Which lytic enzyme is released by the sperm?
A. Trypsin B. Helicase
C. Testosterone D. Hyaluronidase

Q.129 The animals in which there are separate male and female individuals are called?
A. Unisexual B. Bisexual
C. Asexual D. Hermaphrodite

Q.130 Which method is of asexual reproduction?
A. Sporulation B. Apomixes
C. Fission D. All of these

Q.131 What is an example of an oviparous mammal?
A. Penguin B. Spiny anteater
C. Shark D. Elephant

Q.132 Which characteristic is not of identical twins?
A. Produced by separation of two blastomeres B. Produced asexually
C. Produced when embryo is at two cell stage D. Have different genetic makeup

Q.133 Viviparous animals are those in which?
A. Internal fertilization with external development in eggs
B. Internal fertilization and internal development followed by hatching of egg
C. External fertilization with external development
D. Internal fertilization with internal development inside female body

Q.134 In asexual reproduction offspring are genetically?
A. Identical to the parents B. Identical if mutations do not occur.
C. Non identical to the parents D. Both A and B

ANSWER KEY

1	D	21	D	41	C	61	D	81	A	101	D	121	B
2	D	22	D	42	D	62	B	82	B	102	B	122	B
3	D	23	D	43	B	63	C	83	A	103	C	123	D
4	A	24	A	44	A	64	D	84	C	104	C	124	A
5	B	25	C	45	B	65	B	85	B	105	B	125	D
6	D	26	D	46	C	66	D	86	C	106	B	126	B
7	A	27	B	47	B	67	B	87	B	107	D	127	A
8	D	28	C	48	A	68	B	88	B	108	A	128	D
9	A	29	B	9	C	69	C	89	B	109	B	129	A
10	B	30	D	50	C	70	D	90	C	110	B	130	D
11	A	31	D	51	C	71	A	91	B	111	A	131	D
12	C	32	D	52	D	72	C	92	C	112	A	132	D
13	B	33	D	53	A	73	D	93	B	113	C	133	D
14	D	34	A	54	A	74	B	94	B	114	D	134	A
15	D	35	D	55	A	75	A	95	D	115	D		
16	B	36	B	56	B	76	A	96	B	116	B		
17	D	37	A	57	D	77	C	97	D	117	B		
18	B	38	A	58	B	78	C	98	B	118	B		
19	D	39	B	59	D	79	C	99	D	119	B		
20	D	40	D	60	B	80	B	100	A	120	B		

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UNIT 12 PRACTICE EXERCISE

SUPPORT AND MOVEMENT

1. Match the columns:

Column I		Column II
A) Inflammation of joints	–	(1) H – zone
B) Protein of thick filament	–	(2) Myosin
C) Protein of thin filament	–	(3) Actin
D) The central part of thick filament is overlapped by thin filament	–	(4) Arthritis

A) A – 1, B – 2, C – 3, D – 4
B) A – 1, B – 3, C – 2, D – 4
C) A – 4, B – 1, C – 2, D – 3
D) A – 4, B – 2, C – 3, D – 1

2. Binding of Ca^{2+} with _____ in the skeletal muscles and leads to the exposure of the binding site for _____ on the filament _____.

A) Troponin, myosin, actin
B) Actin, myosin, troponin
C) Troponin, actin, relaxin
D) Tropomyosin, myosin, actin

3. Electron microscopic studies of the sarcomeres have revealed that during muscle contraction

A) The width of A – band remains constant
B) The width of the H – zone increases
C) The width of I – band increases
D) The diameter of the fibre increases

4. Put the following statement in proper order to describe muscle contraction.

1. **Signal sent by CNS via motor neuron.**
2. **Generation of action potential in the sarcolemma.**
3. **Release of Ca^{+2} from sarcoplasmic reticulum.**
4. **The neurotransmitter acetylcholine released.**
5. **Sarcomere shortens.**

A) 1 → 2 → 4 → 3 → 5
B) 1 → 4 → 2 → 3 → 5
C) 1 → 4 → 3 → 2 → 5
D) 5 → 4 → 3 → 2 → 1

5. A motor unit is best described as

A) All the nerve fibres and muscle fibres in a single muscle bundle.
B) One muscle fibre and its single nerve fibre.
C) A single motor neuron and all the muscle fibres that it innervates.
D) As the neuron which carries the message from muscles to CNS.

6. The lumen of the T – tubules of sarcolemma is continuous with:

A) Intercellular fluid
B) Extracellular fluid
C) Intracellular fluid
D) Lumen of the cell

7. At the start of a muscle contraction, calcium ions are released from:

A) Acting.
B) The T tubule.
C) The motor neuron.
D) The sarcoplasmic reticulum.

8. T – tubule and the terminal portion of the adjacent envelope of sarcoplasmic reticulum form:

A) Z – line
B) Triads
C) H – zone
D) T – system

9. Smooth muscles help in all except

A) Transportation of food through the digestive tract
B) Transfer of gametes through genital tract
C) Micturition by urinary bladder
D) pumping of heart

10. **Select incorrect matching from the following:**
A) Plasma membrane of muscle fibres – Sarcolemma
B) Cytoplasm of muscle fibres – Sarcoplasm
C) Endoplasmic reticulum of muscle fibres – Sarcoplasmic reticulum
D) Triad – 2 lobule and one sarcoplasmic reticulum.

11. **The H – zone in the skeletal muscles fibre is due to**
A) The absence of myofibrils in the central portion of A – band.
B) The central gap between myosin filaments in the A – band.
C) The central gap between actin filaments in A-band.
D) Extension of myosin filaments in the central portion of the A – band.

12. **Which type of muscles have branched structure:**
A) Skeletal muscles
B) Cardiac muscles
C) Striated muscles
D) Smooth muscles

13. **Which one of following has autonomic nerve supply:**
A) Unstriated muscles
B) Heart muscles
C) Striated muscles
D) Biceps and triceps

14. **Term "Hele" means:**
A) Dark
B) Compact
C) Hollow
D) Bright

15. **A sarcomere is the region of a myofibril between two successive:**
A) A – lines
B) Z – lines
C) H – lines
D) M – lines

16. **Myofibrils contain:**
A) Myofilaments
B) Thin filaments
C) Thick filaments
D) Muscle fibres

17. **Twisting around the actin chains are two strands of another protein:**
A) Troponin
B) Myosin
C) Tropomyosin
D) Collagen

18. **Sarcolemma of muscle fiber penetrates deep into the cell to from hollow elongated tube the:**
A) Longitudinal tubule
B) T-tubule
C) Microtubules
D) Microtubules

19. **Tendons attaches muscle to:**
A) Muscle
B) Ligament
C) Bones
D) Cartilage

20. **Which is not the character of skeletal muscle:**
A) Somatic control
B) Regular Stripes
C) One nucleus per cell
D) Slow to rapid movement

21. **Sarcoplasmic reticulum releases calcium to cytosol which binds to:**
A) Tropomyosin
B) Troponin
C) Myosin
D) Actin

22. **The sarcomere is the functional contractile unit found in:**
A) Nuclei
B) Myofibril
C) Capillary
D) Sarcoplasmic reticulum

23. **The function of sarcoplasmic reticulum is:**
A) To store and release calcium ions
B) To polarize and depolarize sarcolemma
C) To store energy as creatin phosphate
D) To generate a train of nerve impulse

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24. **Skeletal Muscle is:**
A) Voluntary and branched
B) Voluntary and Striated
C) Involuntary and Spindle Shaped
D) Involuntary and Striated

25. **Atlas and axis are joined by:**
A) Hinge joint
B) Saddle joint
C) Pivot joint
D) Synovial joint

26. **Fibrous tissue which connects two bones is called:**
A) Ligament
B) Muscle
C) Tendon
D) Connective tissue

27. **Joint between Tibia and Femur is:**
A) Angular
B) Ball and Socket
C) Sliding
D) Hinge

28. **They provide maximum flexibility:**
A) Ball and socket joint
B) Hinge joint
C) Pivot joint
D) Fibrous joint

29. **Bone-dissolving cell is:**
A) Chondrocytes
B) Osteoclasts
C) Osteoblasts
D) Osteocytes

30. **Following are the characteristics of a spongy bone EXCEPT:**
A) Rich in blood vessels
B) Light
C) Porous
D) Strong

31. **The ends of a long bone on a joint are covered by:**
A) Hyaline cartilage
B) Fibro cartilage
C) Elastic cartilage
D) Tendon

32. **Ear cartilage is:**
A) Tendon
B) Ligament
C) Elastic cartilage
D) Hyaline cartilage

33. **The living cells of cartilage are called:**
A) Thrombocytes
B) Erythrocytes
C) Osteocytes
D) Chondrocytes

34. **When cross bridges contract they pull the actin filament towards the:**
A) Centre of the sarcomere
B) Ends of the sarcomere
C) Right side of the sarcomere
D) Left side of the sarcomere

35. **It is a long cylindrical cell with multiple oval nuclei arranged just beneath its sarcolemma:**
A) Smooth Muscle
B) Skeletal muscle
C) Cardiac muscle
D) Muscle fibres

36. **The cytoplasm of the muscle cell that contains large amount of stored glycogen and myoglobin:**
A) Sarcolemma
B) Axoplasm
C) Protoplasm
D) Sarcoplasm

37. **Muscle is made up of many cells which are referred to as:**
A) Myofilaments
B) Myofibrils
C) Sarcolemma
D) Muscles Fiber

38. **The pigment which stores oxygen in muscles is:**
A) Hemoglobin
B) Myoglobin
C) Myosin
D) Actinomyosin

39. **The repeated protein pattern of myofibrils is called:**
A) Sarcomere
C) Zyomere
C) Sarcolemma
D) Cross bridges

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40. **Each muscle fibre is surrounded by a modified cell membrane called:**
A) Sarcolemma C) Myosin Filament
C) Sarcomere D) Myofilament

41. **Over lapping of thick filament occurs in:**
A) A Band C) M line
B) I Band D) Z line

42. **The function of calcium ions in muscle contraction is to:**
A) Bind to troponin molecule and cause them to move
B) Aid in the transmission of nerve impulse
C) Polarize visible light
D) Bind to tropomyosin molecule and cause them to form cross bridges

43. **The thick filaments in a myofibril of muscles are made of _____:**
A) Haemoglobin C) Actin
B) Myoglobin D) Myosin

44. **Which one of the following structures holds the bones together?**
A) Joints C) Fibrous capsules
B) Cartilages D) Ligaments

45. **Which one of the following cartilages is the most abundant in the human body?**
A) Elastic cartilage C) Fibrous Cartilage
B) Chondrous cartilage D) Hyaline Cartilage

46. **The joints that allow movements in several directions are:**
A) Hinge Joints C) Fibrous Joints
B) Ball and Socket Joints D) Cartilaginous Joints

47. **Which combination is the example of ball and socket joints?**
A) Shoulder and knee joints C) Hip and knee joints
B) Hip and elbow joints D) Hip and shoulder joints

48. **Outermost layer of fascicle is:**
A) Epimysium C) Endomysium
B) Perimysium D) Sarcolemma

49. **All are characteristic of cartilage except:**
A) Blood vessels C) Chondrocyte
B) Connective tissue D) Collagen

ANSWER KEY

1	D	11	C	21	B	31	A	41	A
2	A	12	B	22	B	32	C	42	A
3	A	13	A	23	A	33	D	43	D
4	B	14	D	24	B	34	A	44	D
5	C	15	B	25	C	35	B	45	D
6	B	16	A	26	A	36	D	46	B
7	D	17	C	27	D	37	D	47	D
8	B	18	B	28	A	38	B	48	B
9	D	19	C	29	B	39	A	49	A
10	D	20	C	30	D	40	A		

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PAST PAPER MCQs 2008 – 2020

Human Skeleton:

1. **Which of the following is made up of bones and cartilage?** (2008)
   A) Endoskeleton C) Hydrostatic skeleton
   B) Exoskeleton D) None of these
2. **The collagen fibers of bone are hardened by deposit of: OR Bone matrix is hardened by the:** (2009 & 2017)
   A) Haversian canals/ Calcium carbonate C) Bone marrow tissue/ Calcium bicarbonate
   B) Canaliculi/ Calcium oxalate D) Calcium phosphate
3. **The living cells of cartilage are called** (2010)
   A) Chrondrocytes C) Ostecytes
   B) Osteoblasts D) Osteoclasts
4. **The vertebral column consists of _____ vertebrae:** (UHS-Model Paper-2011)
   A) 33 C) 28
   B) 30 D) 38
5. **Human and mammalian skeleton can be divided into two parts, axial skeleton and:** (2012)
   A) Appendicular skeleton C) Endoskeleton
   B) Exoskeleton D) Hydrostatic skeleton
6. **Last four vertebrae in humans are fused to form a structure called:** (2012)
   A) Sacrum C) Pubis
   B) Cervical vertebrae D) Coccyx
7. **How many bones are involved in the formation of each half of pelvic girdle?** (2012)
   A) 3 bones C) 2 bones
   B) 4 bones D) 1 bone
8. **First vertebra of cervical region of vertebral column is known as:** (2013)
   A) Axis C) Thoracic
   B) Sacral D) Atlas
9. **In a human vertebral column, the number of _____ vertebrae is 7:** (2014)
   A) Cervical C) Lumbar
   B) Thoracic D) Sacrum
10. **Which one of the following structure holds the bones together?** (2014)
    A) Joints C) Fibrous capsules
    B) Cartilages D) Ligaments
11. **Which one of the following cartilages is the most abundant in human body?** (2014)
    A) Elastic cartilage C) Fibrocartilage
    B) Chondrous cartilage D) Hyaline cartilage
12. **The total number of cervical and thoracic vertebrae in human vertebral column is:** (2015)
    A) 7 C) 14
    B) 19 D) 33
13. **Longest bone in the human skeleton is:** (2016)
    A) Ulna C) Tibia
    B) Fibula D) Femur
14. **In pelvic region of human body, sacrum is formed by the fusion of:** (2016)
    A) 4 vertebrae C) 6 vertebrae
    B) 5 vertebrae D) 3 vertebrae
15. **Spongy bone is always surrounded by:** (2017)
    A) Compact bone C) Osteoblast cells
    B) Cartilage D) Osteoclast cells

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16. **The number of bones forming skull in man is:** (2017)
A) 8 C) 29
B) 14 D) 22

17. **The spine consists of a linear series of:** (2017)
A) 33 bones C) 12 bones
B) 24 bones D) 07 bones

18. **Connective tissues which join muscles to bone are:** (2017-Retake)
A) Ligaments C) RBC
B) Tendons D) Osteocytes

19. **Clavicle is the part of:** (2017-Retake)
A) Pectoral Girdle C) Rib cage
B) Pelvic Girdle D) Vertebrae

20. **Second vertebrae of Human vertebral column is called:** (2017-Retake)
A) Atlas C) Phalanges
B) Axis D) Tibia

21. **Pectoral Girdle is the part of:** (2017-Retake)
A) Appendicular skeleton C) Skull
B) Axial skeleton D) Ribs

22. **Skull, vertebral column, ribs and sternum forms:** (2018)
A) Hydrostatic skeleton C) Exoskeleton
B) Axial skeleton D) Appendicular skeleton

23. **Coccyx vertebrae are located in:** (2018)
A) Pelvic region C) Cervical region
B) Thoracic region D) Lumber region

24. **Scapula is a:** (2018)
A) Shoulder bone C) Tail bone
B) Skull bone D) Hip bone

Joints & Disorders:

25. **Neck has _____ type of joints:** (2008)
A) Ball and socket C) Hinge
B) Pivot D) Fibrous

26. **Which disease causes immobility and fusion of vertebral joint?** (2008 & 2010)
A) Sciatica / Osteomalacia (soft bones) C) Disc slip
B) Spondylosis D) Rickets/ Arthritis

27. **Microcephaly, the small sized skull is due to:** (2009)
A) Nutritional Cause C) Hormonal Causes
B) Skeleton Damage D) Genetic Defect

28. **The joints that allow movements in several directions are:** (2009 & 2013)
A) Hinge Joints C) Fibrous Joints
B) Ball and Socket Joints D) Cartilaginous Joints

29. **The most abundant type of bone found on moveable joints is:** (UHS-Model Paper-2011)
A) Bone. C) Fibro-cartilage.
B) Hyaline cartilage. D) Bone and fibro-cartilage.

30. **Hip and shoulder joints are examples of:** (2016)
A) Hinge joints C) Synovial joints
B) Ball and socket joints D) Cartilaginous joints

31. **Which combination is an example of ball and socket joints:** (2018)
A) Shoulder & knee joints C) Hip & Knee joints
B) Hip & elbow joints D) Hip & shoulder joints

Types of Muscles:

32. **Lining of digestive system contain the:** (UHS-Model Paper-2011)
A) Skeletal muscles.
B) Skeletal and cardiac muscles.
C) Cardiac muscles.
D) Smooth muscles.

33. **Which one of the following muscles are considered as "Voluntary Muscles"?** (2020)
A) Smooth muscles
B) Cardiac muscles
C) Skeletal muscles
D) Glandular muscles

34. **Which one of the following are "myogenic" type of muscles?** (2020)
A) Glandular muscles
B) Cardiac muscles
C) Skeleton muscles
D) Smooth muscles

Ultrastructure of Myofilaments:

35. **Diameter of skeletal muscle fiber is:** (UHS-Model Paper-2011)
A) 2-50 μm.
B) 30-90 μm.
C) 10-100 μm.
D) 1-80 μm.

36. **Muscle is made up of many cells which are referred to as:** (2011)
A) Myofilaments
B) Myofibrils
C) Sarcolemma
D) Muscle fiber

37. **The length of the myofibril from one Z-band to the next is known as:** (2011 & 2013)
A) Sarcomere
B) Sarcolemma
C) Sarcoplasm
D) Muscle fiber

38. **The pigment which stores oxygen in muscles is:** (2011)
A) Haemoglobin
B) Myoglobin
C) Myosin
D) Actinomyosin

39. **Each muscle fibre is surrounded by a membrane OR modified cell membrane which is called:** (2012 & 2016)
A) Sarcomere
B) Sarcolemma
C) Twitch fibre/ Myosin filament
D) Capsule / Myofilament

40. **The repeated protein pattern of myofibril is called:** (2014)
A) Sarcomere
B) Zyomere
C) Sarcolemma
D) Cross bridges

41. **A sarcomere is the region of a myofibril between two successive:** (2015)
A) M-lines
B) Z-lines
C) I-bands
D) T-tubules

42. **The sarcolemma of muscle fiber folds inwards and forms a system of tubes which runs through the sarcoplasm called:** (2015)
A) Myofilament
B) Sarcoplasmic reticulum
C) Z-lines
D) Transverse tubules

43. **The thick filaments in a myofibril of muscles are made of _____.** (2019)
A) Haemoglobin
B) Myoglobin
C) Actin
D) Myosin

44. **Thin filaments of muscles contain _____ chains of actin molecules.** (2019)
A) Four
B) One
C) Three
D) Two

45. **What do we call the cell surface membrane of a muscle fiber?** (2020)
A) Sarcolemma
B) Plasma membrane
C) Sarcoplasm
D) Myofibrils

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Sliding Filament Model:

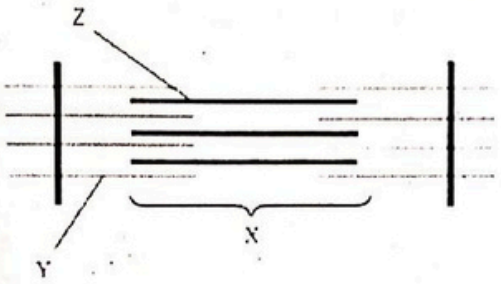
46. During muscle contraction OR
According to sliding filament theory, when muscle fibers are stimulated by nervous system, which of the following changes occurs? (2010 & 2015)

A) I-bands shorten
B) H-zone becomes more visible/ Myosin filaments shorten
C) Z-lines move further apart / Actin filaments shorten
D) A-bands broaden/ Z-line disappears

47. When calcium ions are released from the sarcoplasmic reticulum they bind with _____ during muscle contraction: (2011, 2012 & 2013)

A) Tropomyosin
B) Sarcolemma/ Actin
C) Cytosol's ions / Myosin
D) Troponin

48. Where can we find H-zone in the figure of fine structure for skeletal muscle's myofibril? (2013)



KEY; X= A-band, Y= Actin, Z= Myosin

A) In the mid of "A-band".
B) In "I-band".
C) Besides the "Z-line"
D) Along the "I-band".

49. Which one of the following change occurs when skeletal muscle contracts? (2017)

A) I-band shortens only
B) A-band shortens and Z line moves farther apart
C) I-band shortens and Z lines get closer
D) Actin filament contracts slide

50. Over lapping of thick filament occurs in: (2017-Retake)

A) A Band
B) I Band
C) M line
D) Z line

51. The function of calcium ions in muscle contraction is to: (2019)

A) Bind to troponin molecule and cause them to move
B) Aid in the transmission of nerve impulse
C) Polarize visible light
D) Bind to tropomyosin molecule and cause them to form cross bridges

Sources of Energy for Muscle Contraction:

52. When more energy is required in muscle contraction then that energy can also be produced by _____ as a secondary source: (2014)

A) Glucose
B) Phosphocreatin
C) Fructose
D) Lactic acid

Physiological Inabilities of Muscles:

53. Which disease is caused by low calcium level in blood? (2008)

A) Tetany
B) Cramp
C) Muscle fatigue
D) Sciatica

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54. **Muscle fatigue is due to accumulation of:** **(UHS-Model Paper-2011)**
A) Lactic acid. C) Glucose.
B) ATP. D) Fats.

55. **A muscle condition resulting from the accumulation of lactic acid and ionic imbalance is called:** **(2011)**
A) Tetany C) Cramp
B) Muscle fatigue D) Tetanus

56. **If lactic acid builds up in thigh muscles, it causes muscle tiredness and pain. This condition is called:** **(2015)**
A) Muscle fatigue C) Cramps
B) Tetany D) Oxygen debt in muscles

ANSWER KEY

1.	A	11.	D	21.	A	31.	D	41.	B	51.	A
2.	D	12.	B	22.	B	32.	D	42.	D	52.	B
3.	A	13.	D	23.	A	33.	C	43.	D	53.	A
4.	A	14.	B	24.	A	34.	B	44.	D	54.	A
5.	A	15.	A	25.	B	35.	C	45.	A	55.	B
6.	D	16.	D	26.	B	36.	D	46.	A	56.	A
7.	C	17.	A	27.	D	37.	A	47.	D		
8.	D	18.	B	28.	B	38.	B	48.	A		
9.	A	19.	A	29.	B	39.	B	49.	C		
10.	D	20.	B	30.	B	40.	A	50.	A		

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PAST PAPER MCQs – 2021

Cartilage:

Q.1 Cartilage is a form of:
A. Cardiac tissue B. Connective tissue
C. Epithelial tissue D. Nervous tissue

Q.2 Which type of cartilage is the most abundant in human body?
A. Hyaline cartilage B. Elastic cartilage
C. Fibrocartilage D. None of these

Q.3 Which of the following is not an important function of bone?
A. Regulation of ion concentration B. Muscular contraction
C. Organ and nerve protection D. Regulation of pH through hydration

Q.4 Which of the following cells secrete flexible, elastic, non-living matrix collagen?
A. Osteocytes B. Osteoclasts
D. Chondrocytes D. Osteoblasts

Q.5 Cartilage has living cells that are called:
A. Osteocytes B. Osteoblasts
C. Osteoclasts D. Chondrocytes

Q.6 What is not true about cartilage?
A. There are many blood vessels in the cartilage B. It is a form of connective tissue
C. It covers ends of the bone at the joint D. Both A and B

Q.7 What are osteocytes?
A. White blood cell B. Bone cell
C. Brain cell D. None of these

Q.8 Hyaline cartilage forms joint between:
A. Growing bone B. Mature bones
C. Lamellar bone D. Secondary bone

Q.9 Accumulation of crystals in cartilage is called:
A. Osteoarthritis B. Gout
C. Pseudogout D. None

Q.10 The fibrous connective tissue which attaches bone to bone is called:
A. Tendon B. Ligament
C. Reticular tissue C. Cartilage

Types of Muscles:

Q.11 Which one of the following is not a character of cardiac muscles?
A. Striated and branched B. Multinucleated
C. Self-excitatory D. None of these

Q.12 Muscles are composed of:
A. Silica B. Polyester threads
C. Group of cell fibers D. Calcium and phosphorus

Q.13 Skeletal muscles are made up of:
A. Actin B. Myosin
C. Both A & B D. Actin, myosin and tropomyosin

Q.14 Cardiac muscles differ from skeletal muscles by which of the following property?
A. Structure B. Involuntary control
C. Calcium binding protein D. Sarcotubular system

Q.15 Vertebrates have which of the following?
A. Cardiac muscles B. Skeletal muscles
C. Smooth muscles D. ALL A, B, C

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Q.16 It is a property of cardiac myocytes:
A. Voluntary control
B. Unstripped
C. Fatigue resistance
D. Spindle shaped cell

Q.17 Why skeletal muscles are called striated muscles?
A. Appear darker than smooth muscles by naked eye
B. Alternating dark and light bands appear on their surface when visualized by naked eye
C. Alternating dark and light bands appear on their surface when visualized via a microscope
D. All of these

Q.18 Smooth muscles, cardiac muscles and organs are regulated by which of the following?
A. Central nervous system
B. Parasympathetic nervous system
C. Sympathetic nervous
D. Autonomic system

Q.19 Striated skeletal muscle cells are under?
A. Voluntary control
B. Involuntary control
C. Both A and B
D. None of these

Q.20 Which of the following muscle fiber contains single nucleus?
A. Smooth muscle
B. Cardiac muscle
C. Both A and B
D. Skeletal muscle

Q.21 Which of the following grouping is incorrect?
A. Skeletal, striated, voluntary
B. Cardiac, striated, involuntary
C. Cardiac, striated, voluntary
D. Both B and C

Q.22 An entire skeletal muscle is surrounded by:
A. Sarcolemma → Muscle Fibre
B. Microtubules
C. Both A and B
D. Epimysium

Q.23 The fibrous connective tissue which attaches muscle to bone is called:
A. Tendon
B. Ligament
C. Reticular tissue
D. Cartilage

Q.24 What is true about skeletal muscle cell?
A. It has light and dark band
B. It has only one muscle
C. It is under involuntary control
D. None of these

Q.25 It is present in cardiac muscles but absent in smooth muscles:
A. Tropomyosin
B. Actin
C. Troponin
D. Myosin

Q.26 Which of the following muscles is involuntary and non-striated?
A. Skeletal muscle
B. Smooth muscle
C. Cardiac muscle
D. None

Q.27 Which is not true for cardiac muscle?
A. No distinct nucleus
B. Branched
C. Involuntary
D. Intercalated disc

Q.28 Unique feature of cardiac muscle cell is:
A. Intercalated disc
B. Involuntary
C. Striation
D. All

Q.29 Skeletal muscle associated with skeleton form:
A. Body movement
B. ATP
C. Skeletal system
D. Heat

Q.30 Cardiac muscles are found in:
A. Gut
B. Heart
C. Bladder
D. Limbs

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Structure of Skeletal Muscles:

Q.31 What structure marks the separation between two sarcomeres?
A. I band
B. H zone
C. A band
D. Z disc

Q.32 Skeletal muscle is composed of?
A. Muscle fibrin
B. Muscle fibers
C. Sarcomere
D. None of these

Q.33 Sarcoplasm of the muscle fiber is similar to
A. Cytoplasm of other cell
B. Nucleoplasm
C. Mitochondria
D. Cell membrane

Q.34 Sarcomere attach end to end to form:
A. Myofibril
B. Muscles
C. Muscle fiber
D. None of these

Q.35 Line at center of A band is:
A. Z line
B. M line
C. H zone
D. I band

Q.36 Which of the following is anisotropic?
A. A band
B. I band
C. M line
D. Z line

Q.37 Region between two successive Z lines is:
A. Sarcomere
B. H zone
C. M line
D. A band

Q.38 Cross bridges are found on:
A. Actin
B. Myosin
C. Troponin
D. Tropomyosin

Q.39 The main unit of thick filament is:
A. Myofibril
B. Actin
C. Myosin
D. Z-line

Q.40 Myosin filaments are how many times thick as compared to actin filament?
A. 3 times
B. 6 times
C. 4 times
D. 8 times

Q.41 Which of the following is not true about muscle fibers?
A. Better developed for slow sustained activities
B. For energy, they depend on anaerobic procedures
C. Myoglobin content is high
D. Possess mitochondria in huge numbers

Q.42 A smallest contractile unit of muscle contraction called sarcomere is the area between two?
A. H zone
B. M line
C. Z line
D. Z zone

Q.43 Which of the following is true about sarcomeres?
A. Actin filaments are only found in the I band
B. The sarcomeres contribute to the striated appearance of smooth muscle cells
C. Sarcomeres are functional units of skeletal and smooth muscle cells
D. A band contains both actin and myosin filaments

Q.44 What is located at both sides of the A band?
A. Z-line
B. H zone
C. I band
D. Z zone

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Q.45 Which of the following occurs during muscular contraction?
A. Actin slides over myosin
B. ATP supplies energy
C. Calcium ions are involved
D. All of these

Q.46 Which of the following is true about the organization of actin filaments and myosin in sarcomeres?
A. Myosin filaments appear thinner than actin filaments
B. Prior to contraction, there is no overlap between actin and myosin
C. The degree of overlap of actin and myosin affects the overall contractions
D. All of these

Q.47 Which of the following is the name of the modified endoplasmic reticulum found in muscle cells?
A. T-tubule
B. Sarcomere
C. Cytoplasmic reticulum
D. Sarcoplasmic reticulum

Q.48 Muscles are composed of?
A. Silica
B. Polyester threads
C. Groups of cell fibers
D. Calcium and phosphorous

Q.49 How many thin filaments are arrayed around each thick filament within a sarcomere?
A. 2
B. 4
C. 6
D. 8

Q.50 Dark bands of skeletal muscles are:
A. Z-band
B. A band
C. I band
D. H zone

Q.51 How much of the body heat is produced by muscle tissue?
A. 15%
B. 55%
C. 30%
D. 85%

Q.52 A disc-like protein that is centrally found in sarcomeres is:
A. H line
B. I line
C. M line
D. Z line

Q.53 The functional unit of contractile system in striated muscle is:
A. Myofibril
B. Cross bridges
C. Z band
D. Sarcomere

Q.54 The length of the following is reduced when muscle contracts:
A. H-zone
B. I-band
C. Sarcomere
D. Both A & B

Q.55 The contractile protein of skeletal muscle involving ATPase activity is:
A. Actin
B. Myosin
C. Troponin
D. Tropomyosin

Q.56 Many sarcomeres in series make up the length of a:
A. Microtubules
B. Myofibril
C. Myosin filament
D. M-line

Q.57 Which is most likely to extend the entire length of a muscle fiber?
A. Sarcomere
B. Myofibril
C. Myosin filament
D. M-line

Q.58 The A band further divides by:
A. Z-line
B. A band
C. H zone
D. Z zone

Q.59 A muscle of fascicle is a:
A: Bundle of connective tissue
B. Bundle of myofibrils
C. Bundle of muscle fibres
D. Muscle cells

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Q.60 The space between two Z lines constitutes the:
A. Sarcolemma
B. Sarcophagus
C. Sarcoplasm
D. None of these

Q.61 Bright region in A band is:
A. M line
B. Z line
C. H zone
D. Sarcomere

Q.62 Myofilament is made of:
A. Protein
B. Lipids
C. Carbohydrates
D. All of these

Q.63 Major regulatory protein in muscle is:
A. Myosin
B. Myosin-actin
C. Troponin-tropomyosin
D. Troponin-tropomyosin-actin

Q.64 Sarcoplasm is different form cytoplasm:
A. It contains sarcoplasmic reticulum
B. It contains glycogen
C. It contains glycogen and oxygen binding protein, myoglobin
D. All of these

Mechanism of Skeletal Muscle Contraction:

Q.65 According to sliding filament theory of muscle contraction, which of the following are functions of ATP?
A. ATP does all of these things during muscle contraction
B. It allows the myosin head to detach from the actin filament
C. It moves tropomyosin off of actin binding sites
D. Both A and B

Q.66 What type of enzyme is myosin?
A. ATP synthase
B. ATP hydrolase
C. ADP hydrolase
D. ADP synthase

Q.67 Which of the following proteins does not play a fun force-tension curve of muscle contraction?
A. Titin
B. Myosin
C. Actin
C. All of these

Q.68 Calcium during muscle contraction binds with:
A. Tropomyosin
B. Troponin C
C. Troponin I
D. Troponin T

Q.69 When a muscle fiber shortens, the following shortens:
A. Actin filament
B. Sarcomere
C. Both A and B
D. Myosin

Q.70 Rigor mortis after death results due to which?
A. Decrease in body temperature after death.
B. Accumulation of rigid proteins molecules in sarcoplasm
C. Death of tissue due to unavailability of 02.
D. Unavailability of ATP, which is necessary to break

Q.71 What is hydrolysed during muscle contraction?
A. ACP
B. ADP
C. NAD
D. ATP

Q.72 Actin and myosin are _____ proteins.
A. Globular
B. Fibrous
C. Functional
D. Both A and B

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Q.73 Skeletal muscles cause:
A. Constriction of blood vessels
B. Heart beat
C. Dilation of pupil
D. Eye movement

Q.74 Which of the following is true of troponin and tropomyosin?
A. Troponin binds to myosin and tropomyosin binds to actin
B. Tropomyosin binds to actin and prevents the myosin head from binding to actin
C. Both a and b
D. None of these

Q.75 How many ATP are required for one cycle of muscle contraction and relaxation?
A. 1
B. 3
C. 2
D. 4

Q.76 The contraction of muscle by actin and myosin is described by which biological theory?
A. Endosymbiotic theory
B. Central Dogma theory
C. Cross-bridge theory
D. Sliding filament theory

Q.77 The muscle which moves a body part away from the midline of the body is:
A. Flexor muscles
B. Extensor muscles
C. Adductor muscles
D. Abductor muscles

Q.78 During a muscular contraction, which of the following elements maintains constant length?
A. I band
B. H zone
C. A band
D. Sarcomere

Q.79 Which of the following step occurs immediately after binding of Ca^{2+} with troponin molecule during muscle contraction?
A. Binding sites of actin get attached to the myosin head
B. Troponin uncovers the actin binding sites
C. Ca^{2+} goes back inside sarcoplasmic reticulum
D. Tropomyosin gets removed from the binding sites of actin filaments

Q.80 What occurs when the thin actin and thick myosin filaments slide past each other?
A. Muscle relaxation
B. Muscle contraction
C. Muscle twitch
D. None of these

Q.81 The muscle which moves a body part towards the midline of the body is:
A. Flexor muscles
B. Extensor muscles
C. Adductor muscles
D. Abductor muscles

Q.82 Which of the following action is caused by skeletal muscle:
A. Constriction of blood vessel
B. Eye movements
C. Heartbeat
D. Dilation of pupil

Q.83 Which of the following molecules binds to troponin during muscle contraction, triggering tropomyosin to move away from the actin binding sites and allowing the myosin head to form a cross bridge?
A. ADP
B. Calcium
C. Sodium
D. ATP

Q.84 What is the purpose of calcium in the muscles?
A.It helps move the myosin head into a high-energy position
B. It allows tropomyosin to be pulled away from the actin filament
C. Both a and b
D. None of these

Q.85 Which of the following proteins directly interacts with the myosin-binding site on actin?
A. Tropomyosin
B. Troponin
C. both a and b
D. none of these

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Q.86 Which of the following sections of a sarcomere does not shorten during contraction?
A. I band
B. H zone
C. A band
D. None of these

Q.87 Which of the following does not occur during skeletal muscle contraction?
A. ATP is hydrolysed
B. Calcium binds to myosin heads
C. Both A and B
D. None of these

Q.88 Which two proteins are the major components of myofibrils, allowing for muscle fibre contraction?
A. Myosin and cartilage
B. Actin and myosin
C. Lamellae and actin
D. Only myosin

Q.89 Tropomyosin binds to _____and prevents the myosin from sliding up the actin filament.
A. Myosin
B. Actin
C. Myosin filament
D. Both B and C

Q.90 Nerves that are innervating muscle fibers are called:
A. Sensory nerves
B. Motor neurons
C. Cranial nerves
D. Optic nerve

Q.91 Which disappears during muscles contractions?
A. M line
B. H zone
C. Z line
D. A band

Q.92 Role of sarcoplasmic reticulum prior to muscle contraction:
A. It actively pumps calcium ions into its lumen
B. It releases calcium ions by active transport
C. It creates the proteins needed to cover the actin filaments
D. It releases calcium once an actin potential reaches the sarcolemma

Types of joints

Q.93 Which of the following movements are possible in pivot joint?
A. Flexion and extension
B. Adduction and abduction
C. Rotation
D. Extension flexion and rotation

Q.94 Type of synovial joints:
A. Hinge joint
B. Ball and.socket joint
C. Both A and B
D. Fibrous joint

Q.95 Humerus forms joints with:
A. Clavicle
B. Sternum
C. Hyoid
D. Tibia

Q.96 Which joint is present in neck, due to which it shows movement?
A. Pivot joint (Atlas and Axis)
B. Saddle joint
C. Hinge joint + Radius and Ulna
D. Ball and socket joint

Q.97 The hinge joint and ball and socket joints are the types of:
A. Freely movable joints
B. Slightly movable joints
C. Immovable joints
D. None of these

Q.98 Fluid present in synovial joint is:
A. Synovial fluid
B. Pericardial fluid
C. Plural fluid
D. Interstitial fluid

Q.99 Metacarpal joint is an example of:
A. Condyloid joint
B. Saddle joint
C. Hinge joints
D. Ball and socket joint

Q.100 The connection between two bones is:
A. Joint B. Tendon
C. Suture D. Fissure

Q.101 Joints in which both muscle and bone are in same phase angle:
A. Ball and socket B. Fibrous
C. Cartilaginous D. Hinge joint

Q.102 Which of the following comes under structural classification?
A. Synchondroses B. Sutures
C. Gomphosis D. All of these

Q.103 Joints are classified on the basis of:
A. The amount of movement allowed by them B. Nature of structure they have
C. Type of bones they join D. Both B and C

Q.104 Cartilaginous joints have:
A. Slight movement B. Free movement
C. No movement D. Both A and B

Q.105 A type of joint found at the articulation between teeth and the sockets of the maxilla is:
A. Syndesmosis B. Sutures
C. Gomphosis D. None of these

Q.106 Humerus forms _____ joint with scapula.
A. Ball and socket B. Hinge
C. Pivot D. Fibrous

Q.107 Which the following is not the unique features of synovial joint?
A. Articular capsule B. Synovial fluid
C. Articular cartilage D. Fibrocartilage

Q.108 How many types of joints are present in body?
A. 3 B. 4
C. 5 D. 2

Q.109 In cartilaginous joint:
A. Joint cavity is absent B. Joint cavity is present
C. Both A and B D. None

Q.110 Syndesmosis is present between:
A. Short bones B. Long bones
C. Short and long bone D. Can be present any where

Q.111 Xiphisternal joint is present between:
A. Body of clavicle and xiphoid process B. Body of sternum and xiphoid process
C. Body of clavicle and xiphoid process D. Body of femur and xiphoid process

Gout and Arthritis:

Q.112 Inflammation of joint is known as:
A. Sciatica B. Arthritis
C. Spondylosis D. Disc-slip

Q.113 All of the following are inflammatory arthritis except:
A. Rheumatoid Arthritis B. Osteoarthritis
C. Gouty arthritis D. Osteomyelitis

Q.114 Chronic arthritis is:
A. Rheumatoid arthritis B. Osteoarthritis
C. Gouty arthritis D. None

Q.115 Most chronic and inflammatory type of arthritis is:
A. Osteoarthritis B. Rheumatoid arthritis
C. Gout D. None

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Q.116 Acute form of arthritis results from:
A. Fungal attack
B. Bacterial attack
C. Viral attack
D. Protist attack

Q.117 Gout results due to defective metabolism of:
A. Xanthine dehydrogenase
B. Xanthine carboxylase
C. Xanthine hydrogenase
D. Xanthine oxidase

Q.118 Most common site for autoimmune disease:
A. Skin and joint
B. Muscles
C. A and D
D. None

Q.119 An example of degenerative disease:
A. Rheumatoid arthritis
B. Osteoarthritis
C. Gouty arthritis
D. Osteomalcia

Out of Syllabus

Q.120 Sperms of liverworts, mosses, ferns move towards archegonia, in response to nucleic acid released by the ovum. This is an example of?
A. Chemotropic movement
B. Chemonastic movement
C. Haptonastic movement
D. Chemotactic movement

Q.121 Tibia is found in:
A. Skull
B. Lower leg
C. Face
D. Upper arm

Q.122 Biceps are:
A. Extensors
B. Flexors
C. Adductors
D. Abductors

Q.123 Roots of a plant show which of the following?
A. Positive phototropism and negative geotropism
B. Negative tactic movement and positive tropic movement
C. Positive geotropism of stem and roots
D. Negative phototropism and positive geotropism

Q.124 Rapid movement of leaves of mimosa on touching is an example of?
A. Tropic movements
B. Growth movement
C. Nastic movement
D. Turgor movement

Q.125 Triceps are:
A. Extensor muscles
B. Flexor muscles
C. Abductive muscles
D. Strongest muscles

Q.126 Cranium contains how many bones:
A. 2
B. 4
C. 8
D. 14

Q.127 How many bones humans have in the vertebral column?
A. 52
B. 25
C. 33
D. 34

Q.128 Human eye muscles contract in:
A. 0.01 sec
B. 0.08 sec
C. 0.05 sec
D. None of these

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ANSWER KEY

1	B	21	C	41	B	61	C	81	C	101	D	121	B
2	A	22	D	42	C	62	A	82	B	102	D	122	B
3	D	23	A	43	A	63	B	83	B	103	A	123	D
4	D	24	A	44	C	64	D	84	B	104	A	124	D
5	D	25	C	45	D	65	B	85	A	105	C	125	A
6	A	26	B	46	C	66	B	86	C	106	A	126	C
7	B	27	A	47	D	67	A	87	B	107	D	127	C
8	A	28	A	48	C	68	C	88	B	108	A	128	D
9	B	29	C	49	C	69	C	89	B	109	A		
10	B	30	B	50	B	70	D	90	B	110	B		
11	B	31	D	51	D	71	D	91	B	111	B		
12	C	32	B	52	D	72	B	92	B	112	A		
13	D	33	A	53	D	73	D	93	C	113	C		
14	B	34	A	54	B	74	B	94	C	114	A		
15	D	35	B	55	B	75	A	95	A	115	A		
16	C	36	A	56	B	76	D	96	A	116	B		
17	C	37	A	57	B	77	B	97	A	117	D		
18	D	38	B	58	C	78	C	98	A	118	A		
19	A	39	C	59	C	79	D	99	C	119	B		
20	A	40	A	60	D	80	B	100	A	120	A		

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UNIT 13

PRACTICE EXERCISE

VARIATION AND GENETICS/INHERITANCE

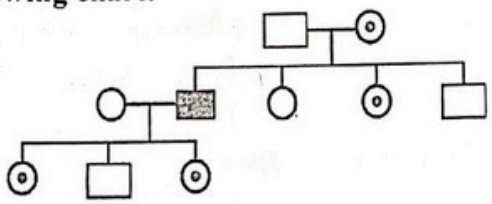
1. **Which one is true for crossing over?**
   A) Non-sister chromatids of homologous chromosome, meiosis
   B) Non-sister chromatids of homologous chromosome, mitosis
   C) Sister chromatids of homologous chromosome, meiosis
   D) Sister chromatids of homologous chromosome, mitosis

2. **Which of the following depicts the Mendel's dihybrid ratio?**
   A) 3:1
   B) 9:7
   C) 9:3:3:1
   D) 15:1

3. **When a true breeding pea plant that has yellow seeds is pollinated by a plant that has green seeds, then all the F1 plants have yellow seeds. This means that the allele for yellow is:**
   A) Heterozygous
   B) Dominant
   C) Recessive
   D) Lethal

4. **A man can suffer from Haemophilia A or B only when he is:**
   A) Homozygous dominant
   B) Homozygous recessive
   C) Hemizygous recessive
   D) Hemizygous dominant

5. **Predict from the following chart:**



   A) Character is dominant and carried by x chromosome.
   B) Character is carried by y chromosome.
   C) Character is sex-linked recessive.
   D) Character is autosomal recessive.

6. **Which of the following gene is Y-linked inheritance?**
   A) SRY
   B) Hypophosphatemic rickets
   C) Tfm
   D) Colour Blindness

7. **Such traits cannot pass to daughters:**
   A) X – linked recessive traits
   B) X – linked dominant traits
   C) Y – linked traits
   D) XX linked traits

8. **X linked recessive trait is transferred in a manner?**
   A) Father to direct son
   B) Father to his daughter and then her son
   C) Mother to her daughter only
   D) None of these

9. **The abundance of haemophilia which is caused by autosomal gene is?**
   A) 80%
   B) 1%
   C) 20%
   D) 90%

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10. **Gene linkage is:**
A) Physical relation of genes
B) Both of these
C) Physiological relation
D) None of these

11. **Which of the following trait is not X linked?**
A) Colour blindness
B) Gout
C) Haemophila
D) Leukemia

12. **When an individual is having both the alleles of contrasting characters it is said to be**
A) Heterozygous
B) Monoecious
C) Dioeious
D) Hermaphordite

13. **What type of gametes will be formed by genotype RrYy?**
A) RY, Ry, rY, ry
B) RY, Ry, ry, ry
C) Ry, Ry, Yy, ry
D) Rr, RR, Yy, YY

14. **In male the sex determining gene is:**
A) XY
B) SXY
C) SRY
D) SXX

15. **In Mendelian dihybrid cross, how many of progeny in F_2 generation possess genotype rryy?**
A) $\frac{1}{16}$
B) $\frac{3}{16}$
C) $\frac{2}{16}$
D) $\frac{4}{16}$

16. **Which of the following most appropriately describes haemophilia?**
A) Recessive gene disorder
B) Chromosomal disorder
C) X-linked recessive gene disorder
D) Dominant gene disorder

17. **Queen Victoria was a carrier of which disease?**
A) Myotonic dystrophy
B) Haemophilia
C) Sickle-cell anaemia
D) Phenylketonuria

18. **Human male is_____ for haemophilic gene**
A) Homozygous
B) Hemizygous
C) Heterozygous
D) None

19. **How many pairs of contrasting characters in pea plants were studied by Mendel in his experiments**
A) Six
B) Eight
C) Seven
D) Nine

20. **Mendel's conclusion that, during gamete formation, the separation of one pair of alleles does not influence the separation of another pair of alleles is his Law of:**
A) Dominance
B) Independent Assortment
C) Segregation
D) Linkage

21. **The recessive gene located on the X chromosome in human are always**
A) Lethal
B) Expressed in male
C) Non allelic
D) Expressed in female

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22. **Genotype of parents of a true bread variety is always**
A) Homozygous for few traits
B) Homozygous for all traits
C) Heterozygous for all traits
D) Mix of homozygous and Heterozygous traits

23. **Independent assortment of traits can take place only when**
A) Genes are present on homologous chromosome
B) Genes are located on same chromosome
C) Genes are located on non-homologous chromosome
D) Genes of one linkage group

24. **Which of the following cross will give a 1:2:1 genotypic ratio**
A) Aa X Aa
B) AA X Aa
C) Aa X AA
D) AA X aa

25. **The appearance resulting from a given gene combination is referred to as the:**
A) Genotype
B) Prototype
C) Phenotype
D) Stereotype

26. **If two alternatives form of a trait are tall and short, and tall is dominant, the genotype of a heterozygous individual would be expressed.**
A) ST
B) SS
C) Ss
D) Tall

27. **The organism, Mendel used for his experiments was:**
A) Drosophila
B) The mouse
C) The garden pea
D) Corn

28. **If two heterozygous individuals are crossed, what percent of their offspring will also be heterozygous?**
A) 25%
B) 75%
C) 50%
D) 100%

29. **What is another term for heterozygous?**
A) Hybrid
B) Recessive
C) Dominant
D) Purebred or true-breeding

30. **In a pedigree chart, the circles are?**
A) Females
B) Childs
C) Males
D) Neither

31. **The recessive character only expressed when present in a double recessive condition. But, a single recessive gene can Express itself in humans when genes are found on**
A) Either on autosome or X chromosome
B) X chromosome of female
C) X chromosome of male
D) Any autosome

32. **If a plant with genotype RrYy is self-fertilized, the probability of getting RRYY genotypes will be**
A) 1/2
B) 1/8
C) 1/4
D) 1/16

33. **Alleles in an individual for a particular trait is called its:**
A) Phenotype
B) Genotype
C) Gene pool
D) Karyotype

34. **Pure breeding lines of Pea were taken regarding seed shape – Round and Wrinkle and were crossed with no intermediate between parents. All offsprings were found to be round. These results show:**
A) Co-dominance
B) Dominant – recessive relationship of alleles
C) Incomplete dominance
D) Over dominance relationship

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35. **Missing of which factor causes Haemophilia A.**
A) Eight C) Nine
B) Ten D) Eleven

36. **A woman can suffer from hemophilia A if she is:**
A) Homozygous dominant C) Homozygous recessive
B) Heterozygous D) Hemizygous recessive

37. **Homozygous means:**
A) Having two identical alleles of a gene C) Alleles in an organism
B) Having two identical genes D) Two different alleles of a gene

38. **In genetics, the term locus refers to the _____ of the gene on the chromosome.**
A) Frequency C) Position
B) Copy D) Inversion

39. **Self-fertilization of F1 dihybrids, following independent assortment of alleles will result in:**
A) 3/16 Tall, round : 3/16 Dwarf, wrinkled C) 9/16 Tall, round : 1/16 Dwarf, round
B) 9/16 Tall, wrinkled : 1/16 Dwarf, round D) 3/16 Tall, wrinkled: 3/16 Dwarf, round

40. **As a result of cross-fertilization of true breeding pea plant having purple colored flowers with that of white colored flowers, the offsprings will have flower with:**
A) ¼ purple and ¾ white C) All white
B) ¼ white and ¾ purple D) All purple

41. **When a disease is transmitted directly from an affected father to his son, it is called:**
A) X-linked C) Y-linked
B) Autosomal D) X and Y-linke

42. **There are _____ number of linkage groups in human.**
A) 22 C) 46
B) 23 D) 80

43. **If a carrier haemophilic female ($X^{H}X^{h}$) is married to a haemophilic male ($X^{h}Y$). What will be the ratio of presence of haemophilia in the children? Select best answer from given condition.**

$X^{H}X^{h}$ $X^{h}Y$

A) 100% all females and males will be haempohlic
B) Carrier female 25% haemophilic female 25%, 25% normal male and 25% haemophilic male
C) Females and males both have 50% chances to getting haemophilia
D) Females have 50% chances of getting haemophilia and males will be 100% Haemophilic

44. **Choose the best explanation for the mechanism of inheritance, keeping in mind Mendel's laws of segregation and independent assortment:**
A) A characteristic is inherited 'in combination' with others
B) The presence of one characteristic (e.g., colour) modifies the inheritance of the other (e.g., shape)
C) A characteristic (say shape) is inherited independent of the influence of others
D) Rare combinations of characters are always due to mutations, which are inherited by the progeny

45.

?	AB	Ab	aB	ab
	AaBB	AaBb	aaBB	aaBb

In the Punnett square given above, the genotype of the Female parent (?) must be:
A) AaBb C) aaBB
B) aaBb D) AaBB

46. **Genotype is**
A) Genetic composition of species
B) Genetic composition of plastids
C) Genetic composition of germ cells
D) Genetic composition of an individual

47. **Deficiency of VIII factor leads to**
A) Haemophilia A
B) Haemophilia C
C) Haemophilia B
D) Haemophilia D

48. **The phenomenon of exchange of segments between paternal and maternal chromosome is called**
A) Linkage
B) Crossing over
C) Recombination
D) Segregation

49. **Haemophilia is more common in males because it is a**
A) Recessive character carried by Y-chromosome
B) Dominant character carried by Y-chromosome
C) Dominant trait carried by X-chromosome
D) Recessive trait carried by X-chromosome

50. **In Mendelian dihybrid cross, how many individuals are homozygous dominant for both the genes in F_2 generation?**
A) $\frac{1}{16}$
B) $\frac{2}{16}$
C) $\frac{4}{16}$
D) $\frac{6}{16}$

ANSWER KEY

1	A	11	D	21	B	31	C	41	C
2	C	12	A	22	B	32	D	42	B
3	B	13	A	23	C	33	B	43	B
4	C	14	C	24	A	34	B	44	C
5	C	15	A	25	C	35	A	45	C
6	A	16	C	26	C	36	C	46	D
7	C	17	B	27	C	37	A	47	A
8	B	18	B	28	C	38	C	48	B
9	B	19	C	29	A	39	D	49	D
10	A	20	B	30	A	40	D	50	A

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PAST PAPER MCQs 2008 – 2020

GENETICS

TERMINOLOGIES (GENE, LOCUS, ALLELE, DOMINANT, RECESSIVE, PHENOTYPE, GENOTYPE, HOMOZYGOUS, HETEROZYGOUS, POLYGENIC INHERITANCE)

Q.1 The colour phenotype of grain is the sum of individual effects of _____ alleles: (2008)

A) Six
B) Five
C) Four
D) Five or three

Q.2 The karyotype of an individual is _____ of chromosomes. (2010)

A) Number
B) Types
C) Number, types and chemical composition
D) Number and types

Q.3 Position of a gene on the chromosome is called its: (2008)
Position of an allele within a DNA molecule is: (2014)
_____ is the exact position of gene on the chromosome: (2018)

A) Locus
B) Origin
C) Amplicon
D) Filial

Q.4 Human skin color is a good example of: (2015)

A) Sex linked inheritance
B) Polygenic inheritance
C) x-linked inheritance
D) y-linked inheritance

Q.5 The total number of genes in a population is called: (2016)

A) Gene pool
B) Allele pool
C) Genome
D) Genomic library

Q.6 Locus stands for: (2017)

A) Position of gene on homologous chromosomes
B) Regions of chromosomes
C) Position of an allele within a DNA molecule
D) Close regions of same chromosomes

Q.7 The region of the chromosome or, more specifically, a length of the DNA molecule, which has a particular role called: (2018)

A) Locus
B) Gene
C) Allele
D) Kinetochore

Q.8 Homozygous means: (2019)

A) Having two identical alleles of a gene
B) Having two identical genes
C) Alleles in an organism
D) Two different alleles of a gene

Q.9 In genetics, the term locus refers to the __of the gene on the chromosome. (2019)

A) Frequency
B) Copy
C) Position
D) Inversion

Q.10 _____ alleles both have an effect on the phenotype of a heterozygous organisms: (2020)

A) Dominant
B) Recessive
C) Co-dominant
D) Multiple

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Q.11 When both the alleles of a gene pair are same, the organism is said to be: (2020)

A) Heterozygous
B) Genotype
C) Homozygous
D) Phenotype

Q.12 Phenotype is: (2020)

A) The genetic complement i.e the genes in an individual for a particular trait
B) Partner of gene pair
C) The form of appearance of a trait
D) The position of gene on the chromosomes

Mendelian Inheritance:

Q.13 Self-fertilization of F_1 dihybrids, following independent assortment of alleles will result in: (2017)

A) 3/16 Tall, round : 3/16 Dwarf, wrinkled
B) 9/16 Tall, wrinkled : 1/16 Dwarf, round
C) 9/16 Tall, round : 1/16 Dwarf, round
D) 3/16 Tall, wrinkled: 3/16 Dwarf, round

Q.14 As a result of cross-fertilization of true breeding pea plant having purple-colored flowers with that of white colored flowers, the offsprings will have flower with: (2017)

A) ¼ purple and ¾ white
B) ¼ white and ¾ purple
C) All white
D) All purple

Q.15 In which situation, genes are not assorted independently during meiosis in a chromosome? (2019)

A) When genes are not linked and their loci are far apart
B) When there are too many genes on a chromosome
C) When some genes have mutated on the chromosome
D) When genes are linked and their loci are close to each other

DOMINANCE RELATIONS

Q.16 When phenotype of a heterozygote is in between the phenotypes of both the homozygote parents, it is called: (2009)

A) Incomplete dominance
B) Epistasis
C) Pleiotropy
D) Codominance

Q.17 Pure breeding lines of Pea were taken regarding seed shape – Round and Wrinkled and were crossed with no intermediate between parents. All offsprings were found to be round. These results show: (2017)

A) Co-dominance
B) Dominant – recessive relationship of alleles
C) Incomplete dominance
D) Over dominance relationship

Q.18 The condition in which heterozygote has a phenotype intermediate between contrasting homozygous parents is called: (2017)

A) Dominance
B) Co-dominance
C) Over dominance
D) Incomplete dominance

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Q.19 Different alleles of a gene that are both expressed in a heterozygous condition are called: (2017-Retake)

A) Complete dominance
B) Incomplete dominance
C) Co-dominance
D) Over dominance

Q.20 When two or more Allele do not show complete dominance or both the alleles are expressing independently in heterozygous condition. Such a condition is called: (2018)

A) Complete dominance
B) Over dominance
C) Co dominance
D) Incomplete dominance

Q.21 Blood group AB is an example of. (2019)

A) Complete dominance
B) Co-dominance
C) Incomplete dominance
D) Recessive alleles

Q.22 In complete dominance (2020)

A) Different alleles of gene are both expressed in heterozygous condition
B) One allele (R) is complete dominant over the other (r) and the presence of the recessive allele is functionally hidden. so the hetrozygote (Rr) has the same round phenotype as (RR) homozygote
C) The phenotype of the hetrozygote is intermediate between phenotypes of the two homozygotes
D) Gene mutations may produce many different alleles of a gene

MULTIPLE ALLELE (ABO & Rh Blood Group System)

Q.23 Which one is correct about 'Rh+' blood? (2009)

A) Will produce anti-Rh antibodies if given Rh^+ blood
B) Cannot produce anti-Rh antibodies in any case
C) Rh^+ antigens are present on RBCs
D) Rh^- antibodies are present in blood

Q.24 Which trait in humans is an example of multiple alleles? (2011)

A) Eye colour
B) Skin colour
C) ABO-blood group
D) Rh-Blood group

Q.25 The gene for ABO-blood group system in humans is represented by symbol: (2012)

A) X
B) I
C) Y
D) O

Q.26 Blood group antigen contains: (2015)

A) Glycoprotein
B) Phospholipids
C) Glycolipid
D) Sphingomyelin

Q.27 ABO blood system is an example of: (2015)

A) Polygenes
B) Multiple genes
C) Multiple alleles
D) Multiple mutation

Q.28 A character determined by three alleles is: (2016)

A) Human skin color
B) Human blood group
C) Human eye color
D) Human Rh factor

Q.29 Which one of the following is multiple allelic character? (2018)

A) Length of stem in pea plant
B) Shape of seed in pea plant
C) Blood group of Human being
D) Colour of flower in pea plant

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Epistasis:

Q.30 Epistasis is a relationship between: (2010)

A) Alleles of a gene
B) Two different genes at the same locus
C) Two contrasting traits
D) Two different genes at different loci

Q.31 a) When a gene pair at one locus interacts with another gene at another locus, the interaction is called: (2011)

b) When the presence of a gene at one locus suppresses the effect of a gene at another locus phenomenon is called: (2012, 2013, 2014)

c) The interaction between different genes occupying different loci is: (2017)

d) Effect cause by a gene or gene pair at a locus interferes with or hides the effect caused by another gene or gene pair ay another locus, such a phenomenon of gene interaction is called: (2017-Retake)

A) Hypostasis
B) Pleiotropy
C) Epistasis
D) Dominance

Pleiotropy:

Q.32 A gene which has multiple phenotypic effect is called: (UHS-MODEL PAPER 2011)

A) Pleiotropic.
B) Epistasis.
C) Multiple allele.
D) Locus.

Q.33 When a single gene affects two or more traits, the phenomenon is called: (2012)

A) Epistasis
B) Pleiotropy
C) Dominance
D) Over dominance

Q.34 A situation in which one gene affects two or more unrelated characteristics is called: (2013, 2014)

A) Epistasis
B) Dominance relation
C) Pleiotropy
D) Polygenes

Gene Linkage:

Q.35 The genes of blue opsin are present on: (2008)

A) Autosome 9
B) Autosome 7
C) Autosome 1
D) Autosome 3

Q.36 Gene for albinism in man is present on chromosome number: (2010)

A) 11
B) 22
C) 21
D) 12

Q.37 There are _____ number of linkage groups in human: (2018)

A) 22
B) 23
C) 46
D) 80

Q.38 Chance of a cross over between loci is directly proportional to their: (2018)

A) Length
B) Distance
C) Width
D) Thickness

Sex Linkage & Genetic Disorders in Humans:

Q.39 What is true about pattern baldness? (2009)

A) It is autosomal recessive disease in males
B) It is autosomal dominant disease in males
C) It is X-linked disease
D) It is Y-linked disease

Q.40 When a disease is transmitted directly from an affected father to his son, it is called: (2010)

A) X-linked
B) Autosomal
C) Y-linked
D) X and Y-linked

Q.41 Which of the following will be hemophilic? (2011)

A) $X^{H}X^{h}$
B) $X^{H}X^{H}$
C) $X^{h}Y$
D) $X^{H}Y$

Q.42 Which of the following is an example of X-linked recessive trait in humans? (2011)

A) Hypophosphatemic rickets
B) Colour blindness
C) Baldness
D) Beard growth

Q.43 X-linked recessive trait is: (2015, 2016)

A) Hypophosphatemia
B) Vitamin-D resistant rickets
C) Haemophilia
D) Diabetes mellitus

Q.44 The gene for red-green color blindness is present on: (2017)

A) Y–chromosome
B) X–chromosome
C) Autosome No. 7
D) Autosome No.9

Q.45 A person was married to his cousin and both are heterozygous for sickle cell anemia. Among their four kids, what will be proportion of affected homozygotes? (2019)

A) 50%
B) 25%
C) 75%
D) 100%

Q.46 If a carrier haemophilic female ($X^{H}X^{h}$) is married to a haemophilic male ($X^{h}Y$). What will be the ratio of presence of haemophilia in the children? Select best answer from given condition. (2019)

$$X^{H}X^{h} \times X^{h}Y$$

A) 100% all females and males will be haempohlic
B) Carrier female 25% haemophilic female 25%, 25% normal male and 25% haemophilic male
C) Females and males both have 50% chances to getting haemophilia
D) Females have 50% chances of getting haemophilia and males will be 100% haemophilic

Q.47 Haemophilia A and B, color blindness and testicular feminization are example of: (2020)

A) X-linked dominant trait
B) X-linked recessive trait
C) Y-linked inheritance
D) Pseudoautosomal trait

Q.48 Which traits are most likely to affect men then women? (2020)

A) X linked recessive
B) X linked dominant
C) Autosomal dominant
D) Autosomal recessive

Sex Determination:

Q.49 In moth's male is _____: (2008)

A) Heterogametic
B) Dieogametic
C) Homogametic
D) Both B & C

Q.50 The sex of individuals of next generation always depends on one of the parents, who is: (2011)

A) Heterogametic
B) Homogametic
C) Isogametic
D) Isomorphic

Q.51 In men sex-determination depends upon the nature of: (2012)

A) Heterogametic male
B) Homogametic female
C) Heterogametic female
D) Homogametic male

Q.52 In male, the sex determining gene is: (2014)

A) XY
B) SRY
C) SXY
D) SXX

Q.53 Number of pairs of autosomes in humans is: (2015)
A) 23
B) 24
C) 21
D) 22

Q.54 XO-XX is the sex determing pattern present in: (2017-Retake)
A) Grasshopper
B) Drosophila
C) Butterfly
D) Man

Mutation:

Q.55 Change in the nature of gene is known as: (UHS-MODEL PAPER 2011)
A) Incomplete dominance.
B) Pleiotropy.
C) Mutation.
D) Polygenic trait.

Q.56 In phenylketonuria, phenylalanine is not degraded because of defective enzyme: (2009)
A) Phenylalanine hydroxylase
B) Phenylalanine phosphate
B) Phenylalanine oxidase
D) None of these

Q.57 Sickle cell Anaemia is an example of which type of chromosomal defect? (2010)
A) Chromosomal rearrangement
B) Transposition of gene
C) Chromosomal aberration
D) Point mutation

Q.58 Phenylketonuria is example of: (2013)
A) Point mutation
B) Polyploidy
C) Translocation
D) Inversion

Q.59 The mutation which causes change in sequence of DNA is called: (2013)
A) Chromosomal mutation
B) Deletion
C) Inversion
D) Point mutation

Q.60 Sickle cell anemia is a type of: (2014)
A) Insertion
B) Transposition
C) Deletion
D) Base substitution

Q.61 Base substitution, deletion and insertion are examples of: (2017)
A) Chromosomal aberrations
B) Point mutation
C) Aneuploidy
D) Euploidy

ANSWER KEY

1.	A	11.	C	21.	B	31.	C	41.	C	51.	A	61.	B
2.	D	12.	C	22.	B	32.	A	42.	B	52.	B		
3.	A	13.	D	23.	C	33.	B	43.	C	53.	D		
4.	B	14.	D	24.	C	34.	C	44.	B	54.	A		
5.	A	15.	D	25.	B	35.	B	45.	B	55.	C		
6.	C	16.	A	26.	A	36.	A	46.	B	56.	A		
7.	B	17.	B	27.	C	37.	B	47.	B	57.	D		
8.	A	18.	D	28.	B	38.	B	48.	A	58.	A		
9.	C	19.	C	29.	C	39.	B	49.	C	59.	D		
10.	C	20.	C	30.	D	40.	C	50.	A	60.	D		

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PAST PAPER MCQs – 2021

Mendel's law of inheritance

Q.1 How many pairs of homologous chromosomes are present are present in *Pisum sativum*?

A. 5 B. 6
C. 7 D. 8

Q.2 A certain type of plant is only tall when it has a heterozygous genotype. If two heterozygous plants are crossed, what is the probability of their offspring will also be tall?

A. 25% B. 1
C. 50% D. 75%

Q.3 A pure breeding tall pea plant was crossed to dwarf plant. What will be the frequency of dwarf plants in F_2?

A. 0.25 B. 0.5
C. 0 D. 1

Q.4 Phenotypic ratio of F_2 generation of monohybrid cross:

A. 3:1 B. 9:3:3:1
C. 1:2:1 D. 9:1

Q.5 What is the phenotypic ratio for a cross between a plant with blue flowers BB and a plant with white flowers bb?

A. 25% blue, 75% white B. 75% blue, 25% white
C. All white D. All blue

Q.6 Composite of an organism's observable characters or traits is called:

A. Genotype B. Phenotype
C. Recombination D. Replication

Q.7 In a dihybrid cross, what fraction of offspring will be homozygous for both traits?

A. 1/2 B. 1/4
C. 1/8 D. 1/16

Q.8 Genotype ratio of Mendel's law of independent assortment is which of the following?

A. 3:1 B. 1:02:01
C. 9:3:3:1 D. None of these

Q.9 Your neighbour has a flower garden in which there are red flowers and white flowers. These flowers are diploid organisms, and flower colour is an autosomal trait. The gene for red flowers (R) is dominant, while the gene for white flowers (r) is recessive. Which of the following is the genotype of a white flower?

A. RR B. rr
C. Rr D. Rr

Q.10 Which of the following is heterozygote?

A. RR B. rr
C. Both A & B D. None of these

Q.11 Which of the following represents a phenotype?

A. X-linked recessive B. Aa
C. Autosomal dominant D. Brown hair

Q.12 Homozygous chromosomes include which of the following?

A. Diploid cells
B. Polyploid cells
C. Both A and B
D. None of these

Q.13 One plant is homozygous dominant for purple flowers, and the other is homozygous recessive for white flowers. What fraction of the F_2 population will have white flowers?

A. 1/4
B. 1/2
C. 1/8
D. 1/16

Q.14 A monohybrid cross yielded 3:1 in F_2. What could be mode of inheritance?

A. Segregation
B. Independent assortment
C. Both A and B
D. None of these

Q.15 In peas, the gene for yellow color (C) is dominant to the gene for green color (c). To determine the genotype of an unknown pea, what kind of kind of pea should you cross with it?

A. Another unknown green
B. Any genotype
C. Homozygous dominant
D. Homozygous recessive (cc)

Q.16 Your neighbor has a flower garden in which there are red flowers and white flowers. These flowers are diploid organisms, and flower color is an autosomal trait. The gene for red flowers (R) is dominant, while the gene for white flowers (r) is recessive. Which of the following could be the genotype of a red flower?

A. Rr
B. RR, Rr, or rr
C. rr
D. RR or Rr

Q.17 A scientist has discovered a new species of flower in which purple coloration is dominant to white. He wishes to know the genotype of a specific purple flower. Which of the following crosses would give him a definitive answer for the purple flower genotype?

A. Unknown purple x homozygous purple
B. Unknown purple x white
C. Unknown purple x unknown purple
D. None of these

Q.18 In nature, garden pea is which of the following?

A. Cross fertilized
B. Cross pollinated
C. Self-fertilized
D. None of These

Q.19 Which of the following characters of pea plant is dominant?

A. Yellow pods
B. White flowers
C. Wrinkled seeds
D. Axial flowers

Q.20 Which of the following is monohybrid cross?

A. TTYy x Ttyy
B. TT x tt
C. Both A and B
D. None of these

Q.21 During test cross, if all off springs are phenotypically dominant then parents are?

A. Heterozygous
B. One homozygous other heterozygous
C. Homozygous
D. None of these

Q.22 A pure breeding tall plant was crossed with dwarf plant. What would be probability of "Tt" genotype in F_2?

A. 0.25
B. 0.5
C. Both A & B
D. None of these

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Q.23 Round shaped pea seed is crossed with wrinkled shaped seed. This refers to:

A. P_1 generation
B. F_1 generation
C. F_2 generation
D. F_3 generation

Q.24 Number of gametes produced by an organism having genotype of RrPp:

A. 2
B. 3
C. 4
D. 5

Q.25 What would be the color of flowers in F_1 generation when a 4'O clock plant having red colored flower is crossed with plant having white colored flower:

A. Half purple and half red
B. Half white and half red
C. All purple
D. All white

Q.26 Mendel's law of inheritance were presented in:

A. 1861
B. 1865
C. 1892
D. 1857

Q.27 Mendel studied seven pairs of traits of pea plant that were present on _____ chromosomes.

A. 4
B. 7
C. 8
D. 9

Q.28 True breeding variety is produced by which of the following?

A. Cross fertilization
B. Self-fertilization
C. Both A and B
D. None of the above

Q.29 A pea plant with yellow seed was crossed to a plant having green seeds. What will happen in F_1 if plants are true breeding?

A. Half seeds will be yellow
B. All seeds will be green
C. Both will be present in ration of 1:2:1
D. All seeds will be yellow

Q.30 How many gametes are produced from genes of diploid organism which is heterozygous for 4 loci?

A. 4
B. 8
C. 12
D. 32

Q.31 Mendel laid the foundation of:

A. Classical genetics
B. Modern genetics
C. Cell biology
D. Neo-Darwinism

Multiple alleles

Q.32 ABO system has different phenotype on the basis of specific _____ on the surface of RBCs

A. Antibody
B. Antigen
C. Anti A-antigen
D. Anti O-antigen

Q.33 ABO blood group system was discovered in:

A. 1811
B. 1901
C. 1801
D. 1911

Q.34 A man with type A blood and a woman with type AB^+ blood have a child. Which blood type is impossible for that child to have?

A. A^-
B. B^-
C. AB^+
D. O^-

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Q.35 ABO blood group system was first introduced by:

A. Landsteiner
B. Bernstein
C. Morgan
D. Fleming

Q.36 ABO has how many phenotypes?

A. 3
B. 4
C. 6
D. 8

Q.37 A man with type AB blood marries a woman with type A blood. Which of the following blood types might their sons inherit?

A. Type A only
B. Type B only
C. Type AH only
D. Type A, type B, or type AB

Q.38 Assume that blood type is not a sex-linked trait. A mother with genotype "A/O" and a father with genotype "A/B" could not have a child with which blood type?

A. A
B. B
C. AB
D. O

Q.39 Assuming that blood type is not a sex-linked trait, what is the probability that a mother with genotype "A/O" and a father with genotype "A/B" will have a child with type B blood?

A. 50%
B. 25%
C. 75%
D. None of these

Q.40 A man with blood group A marries a woman of blood group "B". Both are heterozygous. What is the offspring's having phenotype" O"

A. 10%
B. 25%
C. 50%
D. 75%

Q.41 Rh blood group system is:

A. Multiple allele
B. Polygenic
C. Both A and B
D. None

Q.42 If father have blood group A and mother have blood group B then children can have:

A. A only
B. AB only
C. B only
D. A, B, AB, O all

Gene linkages and crossing over

Q.43 The number of linkage groups in humans is?

A. 24
B. 23
C. 1/23
D. 1/24

Q.44 Genes of same chromosomes are:

A. Linked
B. Non-linked
C. Always assort independently
D. Both B and C

Q.45 Crossing over brings about:

A. Recombinant genes
B. New traits in species
C. Genetic recombination
D. New species

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Sex linkages in Drosophila

Q.46 In Morgan's experiment when males and females of F_1 generation mate with each other and produce F_2 generation. The number of red eyed males were:

A. 2059 B. 2459
C. 782 D. 1101

Q.47 Colored eyes in male *Drosophila* is due to:

A. Hemizygous B. Homozygous
C. Heterozygous D. None

Sex linkage in human (Genetics of hemophilia)

Q.48 A trait determines by a gene on the X chromosome is said to be:

A. Pseudoautosomal B. Sex linked
C. Both A & B D. None of the above

Q.49 Haemophilia B is due to abnormality of factor?

A. VIII B. X
C. IX D. XI

Q.50 Which of the following is not sex linked recessive trait?

A. Testicular feminization syndrome B. Color blindness
C. Haemophilia D. Hypophosphatemic rickets

Q.51 When a hemophilia carrier woman marries a normal man, who among her offspring may be affected?

A. All her children B. Half of her daughters
C. All her daughters D. Half of her sons

Q.52 Which traits cannot pass from father to all of his sons?

A. Sex-linked recessive B. Autosomal
C. Y linked D. None of theses

Q.53 It is a autosomal recessive allele:

A. Hemophilia a B. Hemophilia b
C. Hemophilia c D. Red monochromacy

Q.54 Hemophilia is:

A. Mendelian disorder B. Chromosomal disorder
C. Both A and B D. None of above

Q.55 Traits passed form maternal grandfather to grandson:

A. X-linked dominant B. Y-linked
C. Autosomal D. X-linked recessive

Q.56 Which of the following is inherited via an autosomal recessive allele?

A. Hemophilia B. Huntington's disease
C. Color-blindness D. Cystic fibrosis

Q.57 For a single gene trait, a number of genetic disorders are caused when an individual inherits?

A. Two dominant alleles B. One dominant allele
C. One recessive allele D. Two recessive alleles

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Q.58 Which trait is passed directly from father to son?

A. Y linked
B. X linked
C. X linked dominant
D. X linked recessive

Q.59 Chances for a birth of male and female in humans:

A. 1:2
B. 1:1
C. 2:1
D. 2:2

Q.60 A gamete without sex gamete is called:

A. Male gamete
B. Nullo gamete
C. Advanced gamete
D. None

Q.61 Genes of baldness can express only in the presence of hormone:

A. Progesterone
B. Estrogen
C. Aldosterone
D. LH

Q.62 Defective genes are present on X chromosome. It will normally be transmitted in male off springs by:

A. Father
B. Mother
C. Segregation
D. Mutation

Q.63 A single ovum of human being contains:

A. X chromosome
B. XX chromosome
C. Y chromosome
D. May be all

Q.64 How many sex chromosomes are present in human?

A. 2
B. 3
C. 1
D. 4

Out of Syllabus

Q.65 Which of the following is male determining gene in humans?

A. Tfm
B. SRY
C. Both A and B
D. None of these

Q.66 Number of chromosomes in grass hopper is:

A. Male: 23, Female: 24
B. Male: 24, Female: 23
C. Male: 23, Female: 23
D. Male: 24, Female: 24

Q.67 Male is haploid in:

A. Humans
B. *Drosophila*
C. Birds
D. Grasshopper

Q.68 ZZ/ZW type of sex determination is found in:

A. Humans
B. Fruit fly
C. Moths
D. Grasshopper

Q.69 Number of autosomes in liver cells of humans:

A. 44
B. 23
C. 22
D. 46

Q.70 In males, the gene for colour blindness is located in _____.

A. X-chromosome
B. Y-chromosome
C. Both X and Y chromosomes
D. Either X or Y chromosome

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Q.71 Which of the following is called the sex-linked disease?

A. Leukemia
B. Alzheimer's
C. Malignancy
D. Colour blindness

Q.72 How many sex chromosomes are present in a human being?

A. 1 pair
B. 2 pairs
C. 3 pairs
D. 4 pairs

Q.73 Skin colour in man is controlled by how many pairs of genes:

A. 1
B. 2
C. 3
D.

Q.74 Inheritance in man is traced by which of the following?

A. Mathematical method
B. Statistical method
C. Genetic method
D. Pedigree method

Q.75 In which organisms males are haploid?

A. Aphids
B. Mosquito
C. Butterfly
D. Honey bee

Q.76 Visible genetic traits include which of the following?

A. Hair color
B. Eye color
C. Number of limbs
D. All of these

Q.77 All of the following are continuously varying traits except:

A. Kernel color in wheat
B. Skin color in humans
C. Height in humans
D. Tongue rolling in humans

Q.78 Gene for blue opsin is present on which chromosome?

A. 6
B. 7
C. 8
D. 11

Q.79 A woman is a carrier for a sex-linked disorder. She marries a man whose father had the disorder, and whose mother did not. The man is unaffected. If they have a child, what is the probability that the child is also a carrier?

A. 25%
B. 50%
C. 75%
D. 1%

Q.80 Red-green colorblindness is an X-linked recessive disorder. Jacob's paternal grandfather and father are both colorblind, but his mother has two normal alleles. What is the probability that Jacob is red-green colorblind?

A. 0%
B. 25%
C. 50%
D. 75%

Q.81 Bombay phenotype shows:

A. Dominance
B. Pleiotropy
C. Epistasis
D. Polygenic inheritance

Q.82 In males, gene for color blindness is present on:

A. Y chromosome
B. Autosome 11
C. X chromosome
D. Autosome 1

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Q.83 The phenomenon in which the effect of one allele in heterozygous genotype completely masks the effect of other is called:

A. Codominance
B. Dominance
C. Incomplete dominance
D. Complete dominance

Q.84 Inbreeding increases:

A. Heterozygous
B. Genetic diversity
C. Genetic linkage
D. Homozygous

Q.85 Interaction between genes occupying different loci is known as?

A. Dominance
B. Pleiotropy
C. Epistasis
D. None of these

Q.86 Baldness is most frequent in which of the following?

A. Men
B. Women
C. Both A and B
D. Children

Q.87 Such inheritance in which traits vary quantitatively is:

A. Continuously varying trait
B. Incomplete dominance
C. Test cross
D. Test cross

Q.88 If a heterozygous individual shows the complete effect of both alleles, the type of inheritance would be?

A. Complete dominance
B. Non dominance
C. Incomplete dominance
D. Codominance

Q.89 A human cell from the ovary has 22 chromosomes and an X chromosome. It is which of the following?

A. Egg
B. Sperm
C. Somatic cell
D. Gamete

Q.90 The ordered list of loci known for a particular genome is called:

A. Gene map
B. Loci
C. Alleles
D. Chromosomes

Q.91 Characteristics feature of male *Drosophila* is:

A. Sex combs on back legs
B. Sex combs on front legs
C. Sex combs on middle legs
D. None of them

Q.92 Mutations in the sequence of genes are carried by only:

A. Locus
B. Population
C. Allele
D. Genetic sequence

Q.93 Most protein coding genes are found in:

A. Repetitive DNA
B. RNA
C. Single copy DNA
D. None of these

Q.94 A woman receives his X chromosome from:

A. His mother only
B. Both her mother and her father
C. His father only
D. Extra nuclear DNA in her mother's egg

Q.95 If replication was completely conservative then?

A. One heavy and one light strand would be seen
B. Both heavy strands would be seen
C. Both light strands would be seen
D. None of these

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Q.96 All of the following are continuously varying traits except?
A. Kernel colour in wheat
B. Skin colour in humans
C. Height in human
D. Tongue rolling in humans

Q.97 Mating between relatives is called which of the following?
A. Ex breeding
B. Breeding
C. Inbreeding
D. Outbreeding

Q.98 Mating with non-relatives is known as?
A. Inbreeding
B. Breeding
C. Outbreeding
D. None of these

Q.99 The gene for muscular dystrophy is X-linked. A female carrier and an unaffected male have one daughter together that is homozygous. The daughter has a son with unaffected male. What is the probability that the son will not be affected?
A. 25%
B. 50%
C. 75%
D. 0

Q.100 Gametes consist of:
A. Two alleles
B. Only one allele of gene
C. No allele
D. None of these

Q.101 A male and female have 6 daughters. Chances of next daughter will be:
A. 10
B. 60
C. 50
D. 100

Q.102 Egg is determinant of offspring's gender in:
A. Man
B. *Drosophila*
C. Grasshopper
D. Butterfly

Basic Definition

Q.103 If both the alleles are same with respect to genes then they are called:
A. Heterozygous
B. Unicellular
C. Homozygous
D. None of these

Q.104 The process of determining the locus for particular biological traits includes:
A. Replication
B. Recombination
C. Gene Mapping
D. None

Q.105 The set of all genes in any population is termed as:
A. Population pool
B. Species pool
C. Gene pool
D. All of these

Q.106 A fully expressed allele is referred to as:
A. Dominant
B. Recessive
C. Homozygous
D. Heterozygous

Q.107 A group of interbreeding individuals belonging to a particular species and sharing a common geographic area is called:
A. Community
B. Population
C. Race
D. Family

Q.108 Filial is a Latin word. It means which of the following?
A. Spring
B. Issue
C. Progeny
D. None of these

Q.109 Pink color in flower is:

A. Phenotype
B. Genome
C. Genotype
D. Trait

Q.110 Alternative form of a gene is called:

A. Genome
B. Gene pool
C. Allele
D. Genetics

Q.111 The position of a gene on chromosome is called:

A. Locus
B. Arm
C. Position
D. Location

Q.112 The gene which cannot be determined by observing the organism is?

A. Dominant
B. Allele
C. Phenotype
D. Recessive

Q.113 Which term means "same alleles"?

A. Heterozygous
B. Hybrid
C. Homozygous
D. None of them

Q.114 Chromosomes that have different alleles of a given gene at locus is called:

A. Homozygous
B. Specialization
C. Y chromosomes
D. Heterozygous

Q.115 To form a female zygote, the sperm cell must contribute which chromosome?

A. X
B. 2X
C. Y
D. XY

Q.116 Gene is the molecular unit of which of the following?

A. DNA
B. RNA
C. Heredity
D. Genotype

Organisms that have one copy of each gene on each chromosome are:

A. Haploid
B. Diploid
C. Unicellular
D. None of these

Q.117 Population genetics focus on:

A. Inherited traits
B. Qualitative traits
C. Quantitative traits
D. All of these

ANSWER KEY

1	C	21	C	41	A	61	D	81	C	101	C
2	D	22	B	42	D	62	B	82	C	102	D
3	A	23	A	43	B	63	A	83	D	103	C
4	A	24	C	44	A	64	A	84	D	104	C
5	D	25	C	45	C	65	B	85	C	105	C
6	B	26	B	46	D	66	A	86	A	106	A
7	C	27	A	47	A	67	D	87	A	107	B
8	D	28	B	48	B	68	C	88	D	108	C
9	B	29	D	49	C	69	C	89	A	109	A
10	D	30	D	50	D	70	A	90	A	110	C
11	D	31	A	51	D	71	D	91	B	111	A
12	A	32	B	52	A	72	A	92	D	112	D
13	A	33	B	53	C	73	C	93	C	113	C
14	A	34	D	54	A	74	D	94	B	114	D
15	D	35	A	55	D	75	D	95	D	115	A
16	D	36	B	56	D	76	D	96	D	116	C
17	D	37	D	57	D	77	D	97	C	117	A
18	C	38	D	58	A	78	B	98	C	118	A
19	D	39	B	59	B	79	A	99	D		
20	B	40	B	60	B	80	A	100	B		

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MISCELLANEOUS QUESTIONS

Q.1 Which of the following statements is correct distinction between autotrophs and heterotrophs

A. Only heterotrophs require chemical compounds from the environment
B. Cellular respiration is unique to heterotrophs
C. Conly heterotrophs have mitochondria
D. Autotrophs but not heterotrophs can nourish themselves with nutrients that are entirely inorganic

Q.2 Growth and development of plant cells is the role of?

A. Parenchymatous cells
B. Chlorenchymatous cells
C. Meristematic cell
D. Sclerenchymatous cells

Q.3 Vascular cambium initially appears as actively dividing cells between?

A. Primary xylem and secondary xylem
B. Primary xylem and secondary phloem
C. Secondary xylem and secondary phloem
D. Primary xylem and primary phloem

Q.4 Biorhythms are also called?

A. Diurnal tempo
B. Diurnal rhythms
C. Diurnal time
D. All of these

Q.5 Platypus and panda are all representatives of which of the following?

A. Homoeothermic
B. Poikilothermic
C. Hyperthermic
D. None of these

Q.6 Which statement is incorrect about ethylene production?

A. Climacteric is burst of respiratory activity in fruit ripening
B. It is associated with ethane production
C. It helps in fruit ripening
D. It helps in fruit set

Q.7 What is the chemical characteristic of auxins?

A. Indole propionic acid
B. Indole carboxylic acid
C. Indole acetaldehyde
D. Indole acetic acid

Q.8 Gibberellins may be substituted for which color of light?

A. Red
B. Blue
C. Green
D. White

Q.9 Auxins are responsible for the promotion and growth of roots from?

A. Layering
B. Calluses
C. Cutting
D. Both B and C

Q.10 Cytokine's delay the aging of _____ leaf crops such as cabbage and lettuce.

A. Attached
B. Delayed
C. Fresh
D. Open

Q.11 Move in response to chemical signals is termed as:

A. Chemotaxis
B. Chemonlysis
C. Chemography
D. Chemosynthesis

Q.12 Which one is not a day neutral plant?

A. Cotton
B. Maize
C. Cucumber
D. Tobacco

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Q.13 Klinefelter's syndrome:
A. One X chromosome is missing
B. Sex chromosome fails to segregate
C. Additional sex chromosome is present
D. None of these

Q.14 Developing seeds are rich source of which of the following?
A. Auxins
B. Gibberellins
B. Cytokinins
D. All of these

Q.15 Resumption of normal growth by a dormant embryo is called?
A. Seed dormancy
B. Fruit ripening
C. Germination
D. All of these

Q.16 The clear fluid present in the anterior chamber of eye is?
A. Optic humor
B. Spot humor
C. Vitreous humor
D. Aqueous humor

Q.17 The place of attachment of leaf with the shoot is called?
A. Pith
B. Pit
C. Pulvinus
D. All of these

Q.18 Humans regulate their internal body temperature within a very narrow range. This is an example of?
A. Homeostasis
B. Evolution
C. Genetics
D. Metabolism

Q.19 Critical day length for cocklebur is which of the following?
A. 8.5 hrs.
B. l0 hrs.
C. 14 hrs.
D. 15.5 hrs.

Q.20 Terrestrial animals can tolerate dehydration by:
A. Anhydrobiosis
B. Sweating
C. Thermoregulation
D. None

Q.21 It is correct about metaphase:
A. Chromosome is thickest and largest
B. Chromosome is thinnest and shortest
C. Chromosome is thinnest and largest
D. Chromosome is thickest and shortest

Q.22 Each chromosome of a bone marrow cell has how many chromatids during anaphase?
A. No chromatid
B. 2 chromatids
C. 1 chromatid
D. Several chromatids

Q.23 Which symbiont helps in uptake of phosphorus and sulphur?
A. Bacteria
B. Virus
C. Fungi
D. Protista

Q.24 Who proposed chromosomal theory of inheritance?
A. Sutton and Boveri
B. Margulis and Schwartz
C. Morgan and Mendel
D. Johannsen and Cuvier

Q.25 The idea that opposed the idea of abiogenesis was proposed by:
A. Rudolph Virchow
B. Robert Brown
C. Robert Hooke
D. Lorenz Oken

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Q.26 Which of them excretes in form of uric acid?

A. Birds
B. Human
C. Frog
D. None of these

Q.27 What is the significance of endospores?

A. They allow fungi to survive in extreme climates
B. They allow gram-negative bacteria to reproduce
C. They allow fungi to store nutrients that can survive extreme conditions
D. They are produced by gram-positive bacteria which can survive extreme conditions

ANSWER KEY

1	D	11	A	21	D
2	C	12	D	22	C
3	D	13	C	23	C
4	B	14	D	24	A
5	D	15	C	25	A
6	C	16	D	26	A
7	D	17	C	27	D
8	A	18	A		
9	D	19	A		
10	C	20	A		



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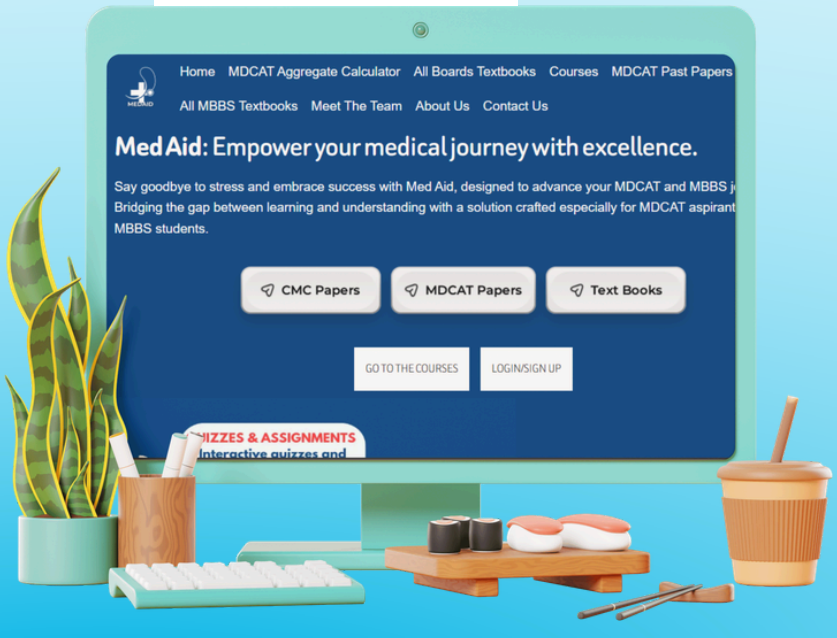
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