VICKS: VIPU Sir ke Important Classroom Kattar Sheet

Botany By Vipin Sharma Sir

Cell: The Unit of Life

1. Which one of the following statements refer to Reductionist Biology?
(l) Physico-chemical approach to study and understand living organisms.
(2) Physiological approach to study and understand, living organisms.
(3) Chemical approach to study and understand living organisms.
(4) Behavioural approach to study and understand living organisms.

2. A major break through in the studies of cells came with the development of electron microscope. This is because **(OS) (2006)**
(1) Electron microscope is more powerful than the light microscope as it uses a beam of electrons which has wavelength much longer than that of photons.
(2) Resolution power of electron microscope is much higher than that of light microscope.
(3) Resolution power of electron microscope is 200-350 nm as compared to 0.1-2.0 nm for the light microscope.
(4) Electron beam can pass through thick materials whereas light microscopy requires thin sections.

3. Names of Schleiden and Schwann are associated with
(l) Protoplasm as the physical basis of life
(2) Cell theory
(3) Theory of cell lineage
(4) Nucleus functions as control centre of cell

4. Electrons microscope has a high resolution power. This is due to **(OS) (1992, 1990)**
(1) Electromagnetic lenses
(2) Very low wavelength of electron beam
(3) Low wavelength of light source used
(4) High numerical aperture of glass lenses used

5. Resolution power is the ability to
(1) Distinguish two close points
(2) Distinguish two close objects
(3) Distinguish amongst organelles
(4) Magnify image

6. Unicellular microscopic organisms were first studied by
(l) Robert Hooke (2) Priestley
(3) Pasteur (4) Leeuwenhoek

7. The most likely method, used to determine the structural details of a cell organelle is
(l) Autoradiography
(2) Simple microscopy
(3) Electron microscopy
(4) Compound microscopy

8. The figures of cork cells as seen by Robert Hooke were published in the book
(1) *On the origin of species*
(2) *Species plantarum*
(3) *Genera plantarum*
(4) *Micrographia*

9. Robert Hooke discovered the _____ of a cell.
(l) Cell membrane (2) Nucleus
(3) Cell wall (4) Cytoplasm

10. Which of the following statements are true for cell theory?
(i) Matthias Schleiden, a German botanist, observed that all plants are composed of different kinds of cells which form the tissues of the plant.
(ii) Theodore Schwann, a German zoologist, reported that cells had a thin outer layer which is today known as the 'plasma membrane'.
(iii) Matthias Schleiden, based on his studies on plant tissues, that the presence of cell wall is a unique character of the plant cells.
(iv) Schwann proposed the hypothesis that the bodies of animals and plants are composed of cells and products of cells.
(v) Rudolf Virchow first explained that cells divided and new cells are formed from pre-existing cells.
(l) (i), (ii), (iii) and (v)
(2) (i), (ii) and (iv)
(3) (i), (ii), (iv) and (v)
(4) (i), (ii) and (iii)

11. **Statement I:** Unicellular organisms are capable of independent existence and performing the essential functions of life.
Statement II: Anton Von Leeuwenhoek first saw and described a live cell. Robert Hooke later discovered the nucleus.
(l) Both statements are correct.
(2) Statement I is correct and II is incorrect.
(3) Statement I is incorrect and II is correct.
(4) Both statement are incorrect.

12. Which of the following is **incorrect** statement?
(1) The shape of the cell may vary with the function they perform.
(2) The plasma membrane is the main arena of cellular activities in booth plant and animal cells.
(3) Ribosomes are non-membrane bound organelles found in all cells.
(4) Animal cells contain cylindrical structure called centriole which helps in cell division.

13. Choose the **correct** statement.
(1) Unicellular organisms are capable of independent existence.
(2) Unicellular organisms are capable of performing essential functions of life.
(3) Anything less than a complete structure of a cell does not ensure independent existence.
(4) All of these

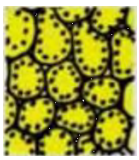
14. Match the lists and select the **correct** option.

List-I		List-II	
A.	Red blood cells	P.	Long and narrow
B.	White blood cells	Q.	Round and biconcave
C.	Columnar epithelial cells	R.	Amoeboid
D.	Tracheid	S.	Elongated

(1) A-(Q); B-(P); C-(R); D-(S)
(2) A-(Q); B-(R); C-(P); D-(S)
(3) A-(S); B-(R); C-(Q); D-(P)
(4) A-(R); B-(P); C-(Q); D-(S)

15. The simplest way to distinguish a prokaryotic from a eukaryotic cell is to check for:
(1) a plasma membrane
(2) a nucleus
(3) DNA
(4) proteins

16. The size of Pleuropneumonia-like Organisms (PPLO) is:
(1) 1-2 μm (2) 10-20 μm
(3) 0.1 μm (4) 0.02 μm

17. Tarun obseved a slide of white blood cells under microscope. His teacher asked him to draw the diagram. Select the diagram which should be drawn by Tarun.
(1)  (2) 
(3)  (4) 

18. Which of the following is enveloped by a nuclear membrane?
(1) 

(2) 

(3) 

(4) None of these

19. Match Column-I (Cell type) with Column-II (Size) and choose the **correct** option.

Column-I (Cell type)		Column-II (Size)	
A.	Viruses	I.	1-2 μm
B.	PPLO	II.	10-20 μm
C.	Eukaryotic cell	III.	About 0.1 μm
D.	Bacterium	IV.	0.02-0.2 μm

(1) A-I; B-II; C-III; D-IV
(2) A-IV; B-III; C-II; D-I
(3) A-I; B-III; C-II; D-IV
(4) A-IV; B-II; C-III; D-I

20. Mark the given statements True (T) or False (F).
(i) Cell is the fundamental structural and functional unit of all living organism.
(ii) Anton Von Leeuwenhoek first saw and described a live cell and Robert Hooke discovered the nucleus.
(iii) Schleiden and Schwann together formulated the cell theory.
(iv) 'Omnis cellula-e-cellula' was explained by Rudolf Virchow.

(v) Cells that have membrane bound nuclei are called eukaryotic whereas cells that lack a membrane bound nucleus are called prokaryotic.
(vi) Ribosome are membrane bound organelles found in all cells.
(vii) The smallest cell is mycoplasma of 0.03 μm in length.
(viii) The four basic shapes of bacteria are bacillus (rod like), coccus (spherical), vibrio (comma shaped) and spirillum (spiral).
(ix) A typical eukaryotic cell is of 10-20 μm, PPLO 0.1 μm and that of viruses is 0.02-0.2 μm.
(x) Many bacteria have small linear DNA in addition to genomic DNA and is called plasmid.
(xi) In bacteria, the infolding of cell membrane is called mesosome, which is the characteristic of prokaryotes.
(xii) The cell envelope of prokaryotic cell consist of three layer-glycocalyx, cell wall and plasma membrane.

Choose the **correct** option given below:
(1) TTFT-TTFT-FTTF
(2) FTTF-TTFF-TTFT
(3) TFTT-TFFT-TFTT
(4) FTFT-FFTT-FTFT

21. **Assertion:** Mitochondria is an important cell organelle of both eukaryotes and prokaryotes.
Reason: They are called power houses and involve in anaerobic respiration.
(1) Assertion and reason both are true and the reason is correct explanation of assertion.
(2) Assertion and reason both are true but reason is not correct explanation of assertion.
(3) Assertion is true but reason is wrong.
(4) Assertion and reason both are wrong.

22. **Assertion:** Cells that have membrane bound nuclei are called eukaryotic whereas cells that lack a membrane bound nucleus are prokaryotic.
Reason: Ribosomes are non-membrane bound organelles found in all cells - both eukaryotic as well as prokaryotic.
(1) Assertion and reason both are true and the reason is correct explanation of assertion.
(2) Assertion and reason both are true but reason is not correct explanation of assertion.
(3) Assertion is true but reason is wrong.
(4) Assertion and reason both are wrong.

23. Different cells have different sizes. Arrange the following cells in an ascending order of their size and select the **correct** option.
(i) *Mycoplasma* (ii) Ostrich egg
(iii) Human RBCs (iv) Bacteria
(1) (i) → (iv) → (iii) → (ii)
(2) (i) → (iii) → (iv) → (ii)
(3) (ii) → (i) → (iii) → (iv)
(4) (iii) → (ii) → (i) → (iv)

24. Plant cell differs from animal cell in the:
(1) presence of centriole.
(2) presence of cell wall and chloroplast.
(3) absence of cell wall.
(4) absence of chloroplast.

25. Which of the following is present in both prokaryotes and eukaryotes?
(1) Golgi complex
(2) Mitochondria
(3) Chloroplast
(4) Plasma membrane

26. The genetic material of prokaryotic cells is called
(1) Nucleus (2) Nucleolus
(3) Nucleoid (4) Centrosome

27. Which of the following is NOT a function of mesosomes?
(l) Respiration
(2) DNA replication
(3) Increases enzymatic content
(4) Reproduction

28. Larger subunit of prokaryotic ribosome is
(1) 30 S (2) 40 S
(3) 50 S (4) 60 S

29. Gas vacuoles are found in:
(1) Blue-green photosynthetic bacteria
(2) Purple and green photosynthetic bacteria
(3) Both (1) and (2)
(4) All bacteria

30. The longest portion of the bacterial flagellum that extends from the cell surface to the outside is called:

(l) Filament (2) Hook
(3) Basal body (4) Shaft

31. A specialized membranous structure in a prokaryotic cell which helps in cell wall formation, DNA replication and respiration is:
(1) Mesosome (2) Chromatophores
(3) Cristae (4) Endoplasmic Reticulum

32. **Assertion:** Cells that have membrane bound nuclei are called eukaryotic whereas cells that lack a membrane bound nucleus are prokaryotic.
Reason: Ribosomes are non-membrane bound organelles found in all cells- both eukaryotic as well as prokaryotic.
(1) Assertion and reason both are true and the reason is correct explanation of assertion.
(2) Assertion and reason both are true but reason is not correct explanation of assertion.
(3) Assertion is true but reason is wrong.
(4) Assertion and reason both are wrong.

33. **Assertion:** A special membranous structure is the mesosome which is formed by the extensions of plasma membrane into the cell.
Reason: In some prokaryotes like cyanobacteria, there are other membranous extensions chromatophores present.
(1) Assertion and reason both are true and the reason is correct explanation of assertion.
(2) Assertion and reason both are true but reason is not correct explanation of assertion.
(3) Assertion is true but reason is wrong.
(4) Assertion and reason both are wrong.

34. In prokaryotes, chromatophores are
(1) Specialized granules responsible for colouration of cells.
(2) Structures responsible for organizing the shape of the organism.
(3) Inclusion bodies lying free inside the cells for carrying out various metabolic activities.
(4) Internal membrane system which becomes extensive and complex in photosynthetic bacteria.

35. Which among the following is not a prokaryote?
(1) *Saccharomyces* (2) *Mycobacterium*
(3) *Nostoc* (4) *Oscillatoria*

36. The site of respiration in bacteria is: **(OS) (1997)**
(1) Ribosome (2) Microsome
(3) Episome (4) Mesosome

37. Bacteria show a range in the number of arrangement of flagella. Bacterial flagellum is composed of
(1) Two parts – pili and fimbriae
(2) Three parts – filament, hook and basement membrane
(3) Three parts – filament, shaft and basal body
(4) Three parts – filament, hook and basal body

38. Which of the following is **incorrect** for ribosomes?
(1) Made up of two sub-units
(2) Form polysome
(3) May attach to mRNA
(4) Have no role in protein synthesis

39. Larger subunit of prokaryotic ribosome is
(1) 30S (2) 40S
(3) 50S (4) 60S

40. Gas vacuoles are found in:
(l) Blue-green photosynthetic bacteria
(2) Purple and green photosynthetic bacteria
(3) Both (l) and (2)
(4) All bacteria

41. The longest portion of the bacterial flagellum that extends from the cell surface to the outside is called:
(1) Filament (2) Hook
(3) Basal body (4) Shaft

42. From the statements given below choose the **correct** option:
A. The eukaryotic ribosomes are 80S and prokaryotic ribosomes are 70S.
B. Each ribosome has two sub-units.
C. The two sub-units of 80S ribosome are 60S and 40S while that of 70S are 50S and 30S.
D. The two sub-units of 80S ribosome are 60S and 20S and that of 70S are 50S and 20S.
E. The two sub-units of 80S are 60S and 30S and that of 70S are 50S and 30S.
(1) A, B, C are true (2) A, B, D are true
(3) A, B, E are true (4) B, D, E are true

43. **Statement I:** Prokaryotic ribosomes are 70S has two subunit 40S and 60S while eukaryotic ribosome are 80S has 30S and 50S subunit.
Statement II: Within the cell, ribosomes are found not only in the cytoplasm but also within the two organelles, chloroplast (in plants) and mitochondria and on smooth ER.
(1) Both statements are correct
(2) Statement I is correct and II is incorrect
(3) Statement I is incorrect and II is correct
(4) Both statements are incorrect

44. Which type of vacuoles provide buoyancy to bacteria?
(1) Sap vacuoles
(2) Contractile vacuoles
(3) Gas vacuoles
(4) Food vacuoles

45. Which of the following statement of a bacterial cell is/are **correct**?
(i) Mesosome is formed by the extensions of plasma membrane into the cell.
(ii) The pili are elongated tubular structures made up of a protein.
(iii) Flagellum is composed of filament, hook and basal body.
(iv) Ribosomes are about 30 nm by 50 nm in size.
(1) (i), (ii) and (iii)
(2) (ii) and (iv)
(3) All of the above
(4) None of the above

46. If you remove the fimbriae from the bacterial cell, which of the following would you expect to happen?
(1) The bacteria could no longer swim.
(2) The bacteria would not adhere to the host tissue.
(3) Transportation of molecules across the membrane would stop.
(4) The shape of bacteria would change.

47. Choose **wrong** statement for ribosome.
(i) Ribosomes first observed under the electron microscope by George Palade.
(ii) They are composed of ribonucleic acid (RNA) and proteins and are surrounded by membrane.
(iii) The eukaryotic ribosomes are 80S while the prokaryotic ribosomes are 70S.
(iv) In prokaryotes, ribosomes are associated with the plasma membrane of the cell.
(1) (iii) and (iv) (2) (ii) and (iv)
(3) only (ii) (4) only (iv)

48. Protein synthesis in an animal cell occurs.
(1) On ribosomes present in cytoplasm as well as in mitochondria.
(2) On ribosomes present in the nucleolus as well as in cytoplasm.
(3) Only on ribosomes attached to the nuclear envelope and endoplasmic reticulum.
(4) only on the ribosomes present in cytosol

49. Many ribosomes may associate with a single mRNA to form multiple copies of a polypeptide simultaneously. Such strings of ribosomes are termed as **(2018)**
(1) Polysome (2) Polyhedral bodies
(3) Plastidome (4) Nucleosome

50. Select the **wrong** statement:
(1) Cyanobacteria lack flagellated cells.
(2) Mycoplasma is a wall-less microorganism
(3) Bacterial cell wall is made up of peptidoglycan.
(4) Pili and fimbriae are mainly involved in motility bacterial cells

51. **Correct** sequence or layers of bacterial cell envelope is:
(1) Cell membrane $\rightarrow$ Glycocalyx $\rightarrow$ Cell wall
(2) Glycocalyx $\rightarrow$ Cell wall $\rightarrow$ Cell membrane
(3) Cell wall $\rightarrow$ Glycocalyx $\rightarrow$ Cell membrane
(4) Glycocalyx $\rightarrow$ Cell membrane $\rightarrow$ Cell wall

52. Which layer of the cell envelope determines the shape of the cell and provides a strong structural support to prevent the bacterium from bursting or collapsing?
(1) Cell wall (2) Cell membrane
(3) Glycocalyx (4) Capsule

53. Bacterial cells have a chemically complex cell envelope. The cell envelope consists of a tightly bound three layered structure; i.e., the

(l) Outermost cell wall followed by the plasma membrane and then the glycocalyx

(2) Outermost glycocalyx followed by plasma membrane and the cell wall

(3) Outermost cell wall followed by the glycocalyx and then the plasma membrane

(4) Outermost glycocalyx followed by the cell wall and then the plasma membrane

54. The term "Glycocalyx" is used for:

(1) a layer surrounding the cell wall of bacteria.

(2) a layer present between cell wall and plasma membrane of bacteria.

(3) cell wall of bacteria.

(4) bacterial cell genetically engineered to possess N-glycosylated proteins.

55. **Statement I:** The cell envelope of prokaryotic cells, consists of a tightly bound three layered structure, i.e. the outermost glycocalyx followed by the plasma membrane and then cell wall.

Statement II: Mesosome is a special membranous structure formed by the extensions of plasma membrane into the cell.

(1) Both statements are correct

(2) Statement I is correct and II is incorrect

(3) Statement I is incorrect and II is correct

(4) Both statements are incorrect

56. Choose the **wrong** statements regarding bacterial cell.

(i) Glycocalyx is the outermost envelope in bacteria.

(ii) The glycocalyx could be a loose sheath called capsule.

(iii) The glycocalyx may be thick and tough called slime layer.

(iv) A special structure formed by the plasma membrane is called mesosome.

(v) Small bristle like fibres sprouting out of the cell are called fimbriae.

(1) (i) and (iii) (2) (i) and (ii)

(3) (ii) and (iii) (4) (i) and (iv)

57. Which of the following components provides sticky character to the bacterial cell? **(OS) (2017-De1hi)**

(1) Cell wall

(2) Nuclear membrane

(3) Plasma membrane

(4) Glycocalyx

58. Which one of the following statements are **correct**?

(i) In some prokaryotes, glycocalyx could be loose sheath called slime layer and sometime it may be thin and tough called capsule.

(ii) In bacteria, cell wall determines the shape of cell and provides structural support.

(iii) In cyanobacteria, the membranous extensions into cytoplasm called chromatophores contains pigments.

(iv) Motile bacteria have thick filamentous extension from their cell wall called flagella, which is composed of three parts filament, hook and basal body. Filament is the longest portion and extend from cell surface to the outside.

(v) Surface structure present in bacteria are flagella, pili and fimbriae.

(vi) Ribosome are about 15-20 nm size and are made up of two subunits – 50S and 30S, which form 70S prokaryotic ribosome.

(vii) Several ribosome may attach to a single rRNA and form a chain called polyribosomes (or) polysome.

(viii) Reserve material in prokaryotic cells are stored in cytoplasm in the form of inclusion bodies.

(ix) The cell membrane is composed of lipids that are arranged in a bilayer.

(x) In humans, the membrane of the erythrocyte has approximately 52% lipids and 40% proteins.

(xi) According to fluid mosaic model, the quasi-fluid nature of lipid enables lateral movement of protein within the overall bilayer. This model was given by Singer and Nicolson in 1972.

(xii) Movement of water by diffusion across plasma membrane is called osmosis.

(1) (i), (iii), (vi), (vii), (ix), (xi) (xii)

(2) (ii), (iii), (v), (vi), (vii), (x), (xi)

(3) (ii), (iii), (v), (vi), (viii), (ix), (xii)

(4) All of these

59. From the given membrane proteins which one is partially or totally buried in cell membrane?

(1) Integral proteins (2) Peripheral proteins
(3) Both (l) and (2) (4) Glycoproteins

60. What is **true** regarding fluid mosaic model?
(1) Phospholipid monolayer is present over protein layer
(2) Phospholipid bilayer is present over protein layer
(3) Proteins are embedded in phospholipid bilayer
(4) Phospholipid layer is sandwiched between two protein layers

61. Which of the following **not** o a characteristic of the fluid mosaic model for biological membranes?
(1) Fluidity
(2) Integral proteins are absent
(3) Lateral movement of proteins
(4) Lipids are present as bilayer

62. The fluid nature of the membrane is important from the point of view of functions like:
(l) cell division and cell growth
(2) endocytosis and secretion
(3) formation of intercellular junctions
(4) All of these

63. The most abundant lipid in the cell membrane is
(1) cutin
(2) glycolipid
(3) steroid
(4) phosphoglycerides

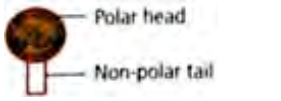
64. Fluid mosaic model of cell membrane was put forward by: **(1991)**
(1) Danielli and Davson
(2) Singer and Nicolson
(3) Garner and Allard
(4) Watson and Crick

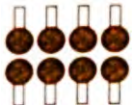
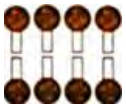
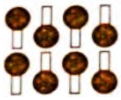
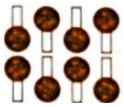
65. Select the **incorrect** statement regarding the plasma membrane.
(1) Ratio of proteins and lipids varies considerably in different cell types.
(2) 52% proteins and 40% lipids constitute the membrane of human RBC.
(3) Arrangement of proteins (P) and Lipids (L) is L-P-P-L.
(4) Head of lipid is hydrophilic.

66. The fluid mosaic model explains which aspects of a cell membrane?
(1) Only structural aspects
(2) Only functional aspects
(3) Both structural and functional aspects
(4) Only fluidity of membrane

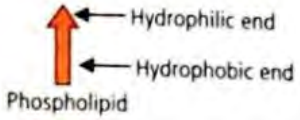
67. Which chemical property is shared by all types of lipids forming the plasma membrane?
(1) Sugar component
(2) Glycerol backbone
(3) Phosphate group
(4) Hydrophobic region

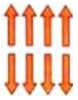
68. The lipid molecules present in plasma membrane have polar heads and non-polar tails (as shown in figure). Which option represents the **correct** arrangement of lipids in lipid bilayer?



(1) 
(2) 
(3) 
(4) 

69. A red blood corpuscle (RBC) was kept in a solution and treated so that it became inside-out. What will be the polarity of the phospholipid bilayer in this cell?



(1) 
(2) 
(3) 
(4) 

70. Which is **correct** in view of fluid mosaic model? **(2008)**
(1) Proteins can flip-flop, lipids cannot
(2) Neither proteins nor lipids can flip-flop
(3) Both lipids and proteins can flip-flop
(4) Lipids can rarely flip-flop, proteins cannot

71. Na^+/K^+ pump involve in transport
(1) Downhill
(2) Passive transport
(3) Uphill
(4) Along concentration gradient

72. As the polar molecules cannot pass through the nonpolar lipid bilayer, they require a _____ of the membrane to facilitate their transport across the membrane
(1) Lipid carrier
(2) Protein carrier
(3) Non-polar channel
(4) All of the above

73. The cell wall of a young plant cell, the primary wall is capable of growth, which gradually diminishes as the cell matures and the secondary wall is formed on the:
(1) inner (towards middle lamella) side of the cell.
(2) outer (towards middle lamella) side of the cell.
(3) inner (towards membrane) side of the cell.
(4) outer (towards membrane) side of the cell.

74. Which of the following layer is present nearest to plasma membrane in plant cell?
(l) Tonoplast (2) Middle lamella
(3) Primary wall (4) Secondary wall

75. Which of the following is absent in algal cell wall?
(l) Galactans (2) Mannans
(3) Cellulose (4) Peptidoglycan

76. **Statement I:** Nucleus, mitochondria and chloroplast are double membrane bound structures while endoplasmic reticulum (ER), the golgi complex, lysosomes and vacuoles are single membrane bound structures.
Statement II: Ribosomes and centrosome are non membrane bound structures.
(1) Both statements are correct
(2) Statement I is correct and II is incorrect
(3) Statement I is incorrect and II is correct
(4) Both statements are incorrect

77. **Statement I:** Algal cell wall is made up of chitin.
Statement II: Secondary cell wall is formed on the outer side of the cell.
(1) Both statements are correct
(2) Statement I is correct and II is incorrect
(3) Statement I is incorrect and II is correct
(4) Both statements are incorrect

78. **Statement I:** Functions of organelles included in endomembrane system are coordinated.
Statement II: Endomembrane system includes ER, golgi complex lysosomes and vacuoles.
(1) Both statements are correct
(2) Statement I is correct and II is incorrect
(3) Statement I is incorrect and II is correct
(4) Both statements are incorrect

79. Which of the following statements are **correct** for cell wall?
(i) Cell wall of algae made of cellulose, galactans, mannans and minerals like calcium carbonate.
(ii) Plants cell wall consists of cellulose, hemicellulose, pectins and proteins.
(iii) The primary wall gradually diminishes as cell matures and the secondary wall is formed.
(iv) The middle lamella is a layer mainly of sodium pectate which holds or glues the different neighbouring cells together.
(v) The cell wall and middle lamellae may be traversed by plasmodesmata which connect the cytoplasm of neighbouring cells.
(1) (i), (iii) and (v) (2) (i), (ii), (iii) and (iv)
(3) (ii) and (v) (4) (i), (ii), (iii) and (v)

80. Rough E.R is mainly responsible for
(1) Protein synthesis (2) Cell wall formation
(3) Lipid synthesis (4) Cholesterol synthesis

81. Which structures are responsible for synthesis of lipid like-steroidal hormones in animal cells?
(1) Smooth ER (2) Smooth and rough ER
(3) Sphaerosomes (4) Golgi bodies

82. Which face of Golgi complex is associated with ER?
(1) Forming face, i.e., *Trans*-face
(2) Maturing face, i.e.; *Trans*-face
(3) Both forming and maturing face
(4) Forming face or *Cis*-face

83. From the given options choose the two organelles that look most alike structurally:
(l) Nucleus and vesicle
(2) ER and mitochondrion
(3) Golgi apparatus and smooth ER
(4) Vacuole and cytoskeleton

84. Golgi body is associated with:
(l) packaging of material.
(2) protein synthesis.
(3) secretion of different substance.
(4) Both (l) and (3)

85. Lysosomes contain:
(l) carboxylating enzymes
(2) respiratory enzymes
(3) oxidising enzymes
(4) hydrolytic enzymes

86. Cell organelle connected with intracellular digestion of macromolecules is:
(1) Lysosome (2) Peroxisome
(3) Polysome (4) Glyoxisome

87. **Statement I:** The smooth endoplasmic reticulum is the major site for synthesis of protein.
Statement II: In animal cells lipid-like steroidal hormones are synthesised in SER.
(1) Both statements are correct
(2) Statement I is correct and II is incorrect
(3) Statement I is incorrect and II is correct
(4) Both statements are incorrect

88. A cell, which is very active in the synthesis and of proteins, would be expected to have
(1) equal amount of RER and SER
(2) more SER than RER
(3) more RER than SER
(4) more Golgi bodies and no ER.

89. Protein synthesis in an animal cell occurs.
(1) On ribosomes present in cytoplasm as well as in mitochondria.
(2) On ribosomes present in the nucleolus well as in cytoplasm.
(3) Only on ribosomes attached to the nuclear envelope and endoplasmic reticulum.
(4) Only on the ribosomes present in cytosol

90. Which of the following is **correct** for the origin of lysosome?
(1) ER $\rightarrow$ Golgi bodies $\rightarrow$ L
(2) Golgi bodies $\rightarrow$ ER $\rightarrow$ L
(3) Nucleus $\rightarrow$ Golgi bodies $\rightarrow$ L
(4) Mitochondria $\rightarrow$ ER $\rightarrow$ Golgi bodies $\rightarrow$ L

91. **Statement I:** The vacuole is bound by a double membrane called tonoplast.
Statement II: In amoeba, the contractile vacuole is important for osmoregulation and excretion.
(1) Both statements are correct
(2) Statement I is correct and II is incorrect
(3) Statement I is incorrect and II is correct
(4) Both statements are incorrect

92. Read the following statements and identify the **correct** option.
(i) In Amoeba, contractile vacuole takes part in osmoregulation and excretion.
(ii) In Protista, food vacuole is formed by engulfing the food particles.
(iii) The vacuole is bound by a double membrane called tonoplast.
(iv) Vacuole can occupy upto 90 percent of the volume of the cell.
(1) (i) and (ii) (2) (ii) and (iv)
(3) (i), (ii) and (iv) (4) None of these

93. Which one of the following statements are **correct**?
(i) The endomembrane system includes ER, Golgi complex, lysosomes and vacuoles.
(ii) ER helps in the transport of substances, synthesis of proteins, lipoproteins and glycogen.
(iii) Ribosomes are involved in protein synthesis.
(iv) Mitochondria help in oxidative phosphorylation and generation of ATP.
(v) In prokaryotic cells, a special membrane structure formed by the extension of the plasma membrane into the cell is known as polysome.
(vi) The smooth endoplasmic reticulum is the major site for synthesis of lipids.
(vii) RuBisCO is the most abundant protein in the whole biosphere.
(viii) Mitochondria, chloroplasts and peroxisomes are not considered as part of endomembrane system.

(ix) The endomembrane system includes mitochondria, chloroplast and peroxisomes.
(x) Smooth endoplasmic reticulum is the major site for synthesis of lipid.
(xi) Rough endoplasmic reticulum is actively involved in protein synthesis.
(xii) Mitochondrial matrix possesses single circular DNA, a few RNA and 80S ribosomes.

Choose the **correct** option given below:
(1) (i), (ii) (v), (x), (xii)
(2) (ii), (iii), (iv), (ix), (xi)
(3) All are correct, except (v), (ix), (xii)
(4) All are correct

94. Energy releasing reaction in a cell occurs in:
(1) Cell wall (2) Ribosomes
(3) Mitochondria (4) Golgi bodies

95. Folding of inner mitochondrial membrane are called
(1) Cristae (2) $F_0 - F_1$ structures
(3) Thylakoids (4) Grana

96. Mitochondria and chloroplast are
(1) semi-autonomous organelles
(2) formed by division of pre-existing organelles and they contain DNA but lack protein synthesizing machinery.

Which one of the following options is **correct?** **(2016-I)**
(l) both (1) and (2) are correct
(2) (2) is true but (1) is false
(3) (1) is true but (2) is false
(4) both (l) and (2) are false

97. Which of the following pair of organelles does **not** contain DNA? **(2019)**
(1) Mitochondria and Lysosomes
(2) Chloroplast and Vacuoles
(3) Lysosomes and Vacuoles
(4) Nuclear envelope and Mitochondria

98. Which of the following is **not** common in chloroplasts and mitochondria?
(1) Both are present in animal cells
(2) Both contain their own genetic material
(3) Both are present in eukaryotic cells
(4) Both are present in plant cells

99. The membrane of the thylakoids encloses a space called:
(1) Lumen (2) Stroma
(3) Matrix (4) Grana

100. The bright colours of ripen fruits are due to
(1) Leucoplasts
(2) Chloroplasts
(3) Amyloplasts
(4) Chromoplasts

101. A number of organized flattened membranous sacs found inside a is:
(1) Thylakoid (2) Stroma
(3) Cristae (4) Oxysome

102. Which of the following plastid stores proteins?
(1) Elaioplast (2) Aleroplast
(3) Amyloplast (4) All of these

103. Match the List-I with List-II. **(2021)**

List-I		List-II	
A.	Cristae	I.	Primary construction in chromosome
B.	Thylakoids	II.	Disc-shaped sacs in Golgi apparatus
C.	Centromere	III.	Infoldings in mitochondria
D.	Cisternae	IV.	Flattened membranous sacs in stroma of plastids

Choose the **correct** answer from the options given below:
(1) A-(I), B-(IV), C-(III), D-(II)
(2) A-(III), B-(IV), C-(I), D-(II)
(3) A-(II), B-(III), C-(IV), D-(I)
(4) A-(IV), B-(III), C-(II), D-(I)

104. Organelle 'X' the major centre of release of energy in aerobic respiration, but is absent in prokaryotes and anaerobic eukaryotes. It can be stained differentially with Janus Green. Identify the organelle X.
(1) Nucleus
(2) Mitochondria
(3) Lysosome
(4) Rough endoplasmic reticulum

105. Extranuclear inheritance is due to the presence of genes in
(1) mitochondria and chloroplasts
(2) nucleus and mitochondria
(3) nucleus and chloroplasts
(4) endoplasmic reticulum and mitochondria.

106. **Assertion:** Mitochondria are called power house of the cell.
Reason: They produce cellular energy in the form of ATP.
(1) Assertion and reason both are true and the reason is correct explanation of assertion.
(2) Assertion and reason both are true but reason is not correct explanation of assertion.
(3) Assertion is true but reason is wrong.
(4) Assertion and reason both are wrong.

107. **Assertion:** Mitochondria is an important cell organelle of both eukaryotes and prokaryotes.
Reason: They are called power houses and involve in an aerobic respiration.
(1) Assertion and reason both are true and the reason is correct explanation of assertion.
(2) Assertion and reason both are true but reason is not correct explanation of assertion.
(3) Assertion is true but reason is wrong.
(4) Assertion and reason both are wrong.

108. **Statement I:** Mitochondria is a double membrane bound structure.
Statement II: The inner membrane of mitochondria forms a number of infoldings called cristae which increase the surface area.
(1) Both statements are correct.
(2) Statement I is correct and II is incorrect.
(3) Statement I is incorrect and II is correct.
(4) Both statements are incorrect.

109. **Statement I:** Aleuroplasts stores oils and fats.
Statement II: Elaioplasts stores proteins.
(1) Both statements are crrect.
(2) Statement I is correct and II is incorrect.
(3) Statement I is incorrect and II is correct.
(4) Both statements are incorrect.

110. Match column-I (Cell organelle) with column-II (Membrane) and select the **correct** option from the codes given below.

Lit-I		**List-II**	
A.	Mitochondria	I.	Without membrane
B.	Lysosomes	II.	Single membrane
C.	Ribosomes	III.	Double membrane

(1) A-(I), B-(II), C-(III)
(2) A-(III), B-(I), C-(II)
(3) A-(III), B-(II), C-(I)
(4) A-(II), B-(III), C-(I)

111. Which one of the following statements are **correct**?
(i) The Mitochondria and Chloroplast are double membrane-bound structures.
(ii) The inner compartment of mitochondria is called matrix and possesses linear DNA molecules.
(iii) Mitochondria organelle is site of aerobic respiration, and it divide by fragmentation.
(iv) Plastid are classified based on pigment into chloroplasts, chromoplast and leucoplast.
(v) Amyloplast type of leucoplast stores carbohydrates, elaioplasts store proteins whereas aleuroplasts store oils and fats.
(vi) *Chlamydomonas*, a green algae has one chloroplast per cell.
(vii) The space limited by inner membrane of chloroplast is called stroma.
(viii) Thylakoids are arranged in stacks like the piles of coin called grana and are connected to other thylakoid of different stacks by membranous tubules called stroma lamellae.
(ix) The ribosome of chloroplast and mitochondria are of 80S unit.
(x) Ribosome are composed of ribonucleic acid and protein.
(xi) Eukaryotic ribosome are 80S. Here 'S' is svedberg's unit which stands for the sedimentation coefficient.
(xii) The core of flagella is called axoneme which consist of nine triplets of radially arranged peripheral microtubules and one pair of centrally located microtubules.

Choose the **correct** option given below:
(1) (i), (iii), (vi), (vii), (ix), (x), (xii)
(2) (ii), (iv), (v), (vi), (viii), (ix), (xi)
(3) (i), (iv), (vi), (vii), (viii), (x), (xi)
(4) All of these

112. Match the List-I with List-II.

List-I		List-II	
A.	Axoneme	I.	Centriole
B.	Cartwheel pattern	II.	Cilia and flagella
C.	Crista	III.	Chromosome
D.	Satellite	IV.	Mitochondria

Choose the **correct** answer from the options given below.

(1) A-(IV), B-(III), C-(II), D-(I)
(2) A-(IV), B-(II), C-(III), D-(I)
(3) A-(II), B-(IV), C-(I), D-(III)
(4) A-(II), B-(I), C-(IV), D-(III)

113. Cilium and flagellum emerge from centriole-like structure called:

(1) Centrosome (2) Kinetochore
(3) Basal body (4) Centromere

114. Organelle important in spindle formation during nuclear division is:

(1) Centriole (2) Golgi body
(3) Chloroplast (4) Mitochondrion

115. The central proteinaceous part of proximal region of the centriole is called:

(l) Radial spoke (2) Hub
(3) Central sheath (4) Axoneme

116. The principal protein found in centrioles is:

(1) Tubulin (2) Nexin
(3) Basal body (4) Pilin

117. Each centriol has a cartwheel organisation having a whorl of 9 peripheral fibrils, can be represented with:

(l) 9 singlet + 0 central
(2) 9 doublet + 0 central
(3) 9 triplet + 2 central singlet
(4) 9 triplet + 0 central

118. **Assertion:** The prokaryotic bacteria also possess flagella but these are structurally different from that of the eukaryotic flagella.
Reason: They are made up of nine evenly spaced triplet of peripheral fibrils of tubulin protein.

(1) Assertion and reason both are true and the reason is correct explanation of assertion.
(2) Assertion and reason both are true but reason is not correct explanation of assertion.
(3) Assertion is true but reason is wrong.
(4) Assertion and reason both are wrong.

119. **Assertion:** Core of centrioles called axoneme.
Reason: In centrioles arrangement of microtubules is referred to as the 9+2 array.

(1) Assertion and reason both are true and the reason is correct explanation of assertion.
(2) Assertion and reason both are true but reason is not correct explanation of assertion.
(3) Assertion is true but reason is wrong.
(4) Assertion and reason both are wrong.

120. **Statement I:** Cilia are longer than flagella and responsible for cell movement.
Statement II: Both prokaryotic and eukryotic flagella are structurally similar.

(1) Both statements are correct
(2) Statement I is correct and II is incorrect
(3) Statement I is incorrect and II is correct
(4) Both statements are incorrect

121. Which characters for cilia and flagella are **correct** from given characters?

(i) They are covered with plasma membrane.
(ii) Their core called the axoneme, possesses a number of microtubules running parallel to the long axis.
(iii) The axoneme usually has nine pairs of triplets of radially arranged peripheral microtubules and a pair of centrally located microtubules.
(iv) The central tubules are connected by bridges and are also enclosed by a central sheath.
(v) Central sheath is connected to one of the tubules of each peripheral doublets by a radial spoke.
(vi) Cilium but not flagellum emerge centriole- like structure called the basal

(1) (i), (iii), (iv) and (v)
(2) (iii), (iv), (v) and (vi)
(3) (i), (ii), (iv) and (v)
(4) (ii), (iii), (iv) and (v)

122. Which of the following is **correct** regarding the structure of section of cilia/flagella?

	Peripheral Microtubules (Doublets)	Central Microtubules (Singlets)	Radial Spokes	Central Sheath
(1)	9 + 0	2	8	1
(2)	9 + 2	9 + 0	9	1
(3)	9	2	9	1
(4)	3	6	9	1

123. The movement of cilia and flagella is due to the presence of
(1) radial spokes
(2) central sheath
(3) singlet microtubules
(4) dyneins

124. The motile bacteria are able to move by: **(2014)**
(1) Pili (2) Fimbriae
(3) Flagella (4) Cilia

125. Chromosome having centromere in its middle is
(l) Acrocentric (2) Telocentric
(3) Metacentric (4) Sub-metacentric

126. Chromosomes can be classified on the basis of position of
(1) Centriole
(2) Centromere
(3) Primary constriction
(4) Both (2) and (3)

127. Which structure is present in chromosomes?
(1) Nucleus (2) Centromere
(3) Centrosome (4) Golgi body

128. The function of nucleolus is the synthesis of
(1) DNA (2) m-RNA
(3) r-RNA (4) t-RNA

129. Which of the following is/are the nucleoprotein structure(s)?
(1) Chromatin (2) DNA
(3) Centromere (4) All of these

130. In which type of chromosome, one arm is very long and one arm is very short?
(1) Acrocentric (2) Metacentric
(3) Sub-metacentric (4) Telocentric

131. Sometimes a few chromosomes have __A__ secondary constrictions at a constant location. This gives the appearance of a small fragment called the __B__.
(1) A-non staining, B-satellite
(2) A-staining, B-satellite
(3) A-non staining, B-kinetochore
(4) A-non staining, B-Nuceloplasm

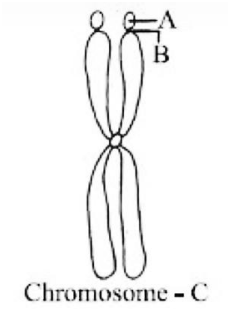
132. **Statement I:** Every chromosome essentially has a primary constriction known as kinetochore.
Statement II: In acrocentric chromosomes, the centromere is situated close to its end forming one extremely short and one very long arm.
(1) Both statements are correct
(2) Statement I is correct and II is incorrect
(3) Statement I is incorrect and II is correct
(4) Both statements are incorrect

133. Which characters for chromosome are **correct** from given statements?
(i) Part of chromosome after secondary constriction is known as satellite.
(ii) On the sides of centromere a disc-shaped structure called kinetochores are present.
(iii) In metacentric chromosome centromere present in middle forming two equal arms of the chromosome.
(iv) In sub-metacentric chromosome centromere present close to its end, resulting into one shorter arm and one longer arm.
(v) In case of acrocentric chromosome the centromere is situated slightly away from the middle forming one extremely short and very arm.
(vi) Telocentric chromosome has a terminal centromere.
(1) (i), (ii), (iv) and (vi)
(2) (i), (ii), (iii) and (vi)
(3) (iii), (iv) and (v)
(4) (i), (ii) and (vi)

134. Choose the **correct** statement for nucleus.
(i) Nucleus as a cell organelle was first described by Robert Brown.
(ii) Space between nuclear envelope called perinuclear space (10 to 50 nm).

(iii) Through nuclear pores, movement of RNA and protein molecules takes place only in one direction between the nucleus and the cytoplasm.
(iv) Normally, there is only one nucleus per cell but variations frequently observed.
(v) Nucleolus is membrane bound structure and it is a site for active ribosomal RNA synthesis.
(vi) Larger and more numerous nucleoli are present in cells actively carrying out protein synthesis.
(1) (iii), (iv) and (v)
(2) All, except (v)
(3) All, except (iii) and (v)
(4) All of these

135. The following diagram represents a structure of chromosome. Identify the structures marked as A, B and C.



Chromosome - C

(1) A-Satellite, B-Primary constriction, C-Acrocentric
(2) A-Satellite, B-Secondary constriction, C-Metacentric
(3) A-Satellite, B-Centromere, C-Telocentric
(4) A-Satellite, B-Centromere, C-Submetacentric

136. How many characters for chromosomes are **not** correct from given characters?
(i) Interphase nucleus has a loose and indistinct network of nucleoprotein fibres called chromatin.
(ii) The name chromatin for material of the nucleus was given by Flemming.
(iii) Chromatin consists of DNA and some basic proteins called histones, some non-histone proteins and RNA.
(iv) A single human cell has approximately two metre long thread of DNA distributed among its forty six chromosomes.
(v) Every chromosome essentially has a primary constriction or the centromere.
(vi) Every chromosome have non-staining secondary constrictions.
(1) (i), (ii) and (iii) (2) (i), (iv) and (v)
(3) (iv) and (vi) (4) (vi) only

137. Satellite chromosomes have
(1) Primary constriction only
(2) Secondary constriction only
(3) Tertiary constriction only
(4) Both primary and secondary constriction

138. Fill in the blanks (yellow marked) and choose the **correct** option given below.
(i) The arrangement of axonemal microtubles in flagella is referred to as _A_ array.
(ii) In flagella, the central tubules are connected by bridges and is enclosed by _B_ which is connected to one of each peripheral doublets by _C_.
(iii) The cilium and flagellum emerge from centriole-like structure called the _D_.
(iv) Centriole is made up of nine evenly spaced peripheral fibrils of _E_ protein.
(v) The central part of the proximal region of the centriole is called _F_, which is connected with tubules of peripheral triplets by _G_.
(vi) The space between two parallel membranes of nuclear envelope is called _H_.
(vii) The nuclear matrix is called as _I_, which contains _J_ and chromatin.
(viii) Nucleolus is a site for _K_ RNA synthesis.
(ix) The interphase nucleus has a loose and indistinct network of nucleoprotein fibres called _L_ which contains DNA, and some basic protein called _M_
(x) Based on position of _N_ chromosome are metacentric, sub-metacentric, _O_ and _P_.
(xi) The primary constriction in a structure of chromosome is _Q_ and the secondary constriction give small fragment called _R_.
(xii) The _S_ in the plastid is the site of light reactions and the _T_ of dark reaction.
(1) A-9+2 array, C-Radial spokes, E-Flagellin, O-Metacentric.
(2) B-Central Sheath, E-Tubulin, G-Radial Spokes, S-Stroma.
(3) D-Basal bodies, K-Ribosomal, N-Centromere, P-Telocentric.
(4) E-Tubulin, F-Hub, R-Satellite, T-Grana.

Answer Key

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

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