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Assignment

Batch: 11th Ignite

Sub: Biology

Topic Cell the unit of Life

EXERCISE – 1

1. Cell membrane is composed of :-
(A) Proteins and cellulose
(B) Proteins and phospholipids
(C) Proteins and carbohydrates
(D) Proteins, phospholipids and some carbohydrates

2. Carbohydrates are present in the plasmalemma in the form of :-
(A) Hemicellulose (B) Cellulose (C) Starch (D) Glycoprotein

3. According to fluid mosaic model (proposed by Singer & Nicolson) plasma membrane is composed of :-
(A) Cellulose, hemicellulose
(B) Phospholipid and integrated protein
(C) Phospholipid, extrinsic protein, intrinsic protein
(D) Phospholipid and hemicellulose

4. Carbohydrates which present in the cell membrane take part in :-
(A) Transport of substance
(B) Cell recognition
(C) Attachment to microfilament
(D) Attachment to microtubules

5. Plasma membrane is fluid structure due to presence of :-
(A) Carbohydrate (B) Lipid (C) Glycoprotein (D) Polysaccharide

6. The chemical substance abundantly present in middle lamella is :-
(A) Cutin (B) Chitin (C) Lignin (D) Pectin

7. Which of following boundary is capable of growth, which gradually diminishes as the cell matures ?
(A) Primary cell wall (B) Secondary cell wall (C) Tertiary cell wall (D) Cell membrane

8. The fluid nature of the membrane indicates function of :-
(A) Cell growth (B) Cell division (C) Endocytosis (D) All the above

9. Plasma membrane is :-
(A) Selectively permeable
(B) Permeable
(C) Immpermeable
(D) Semipermeable

10. The Singer's Model of Plasma membrane differs from the Robertson's model in the :-
(A) Number of lipid layers (B) Arrangement of proteins
(C) Arrangement of lipid layers (D) Absence of protein layers

11. Ingestion of solid food by plasma membrane is called :-
(A) Endosmosis (B) Pinocytosis (C) Cytokinesis (D) Phagocytosis

12. Ingestion of large molecules by animal cell is called :-
(A) Diffusion (B) Osmosis (C) Exocytosis (D) Endocytosis

13. In fluid mosaic model of plasma membrane :-
(A) Upper layer is non-polar and hydrophilic (B) Polar layer is hydrophobic
(C) Phospholipids form a bimolecular layer in middle part
(D) Proteins form a middle layer

14. According to widely accepted "fluid mosaic model" cell membranes are semi-fluid, where lipids and integral proteins can diffuse randomly. In recent years. This model has been modified in several respects. In this regard, which of the following statements is incorrect :-
(A) Proteins can also undergo flip-flop movements in the lipid bilayer
(B) Many proteins remain completely embedded with in the lipid bilayer
(C) Proteins in cell membranes can travel within the lipid bilayer
(D) Proteins can remain confined within certain domains of the membranes

15. The main lipid components of the plant cell membrane are :-
(A) Phosphodiesters (B) Glycocalyx (C) Peptidoglycan (D) Phosphoglycerides

16. Rough E.R. mainly responsible for :-
(A) Protein synthesis (B) Cell wall formation
(C) Lipid synthesis (D) Cholesterol synthesis

17. Golgibody orginates from
(A) E.R. (B) Mitochondria (C) Nucleus (D) Proplastid

18. Which of the following provides mechanical support and shape to the cell :-
(A) Golgi complex (B) Centrioles (C) Lomasomes (D) E.R.

19. Power house of cell is
(A) Nucleus (B) DNA (C) Mitochondria (D) ATP

20. Hydrolytic enzymes are abundantly found in which cell organelles :-
(A) Ribosome (B) Lysosome (C) Oxysome (D) Endoplasmic reticulum

21. Semiautonomous cell organelle is :-
(A) Mitochondria (B) Ribosome (C) Plasma membrane (D) Peroxysome

22. Chemical modification of substance like glycosylation of protein and lipid occur in :-
(A) Endoplasmic reticulum (B) Golgi body
(C) Lysosome (D) Ribosome

23. The smooth E.R. is generally made up of :-
(A) Cisternae (B) Tubules (C) Vesicle (D) All the above

24. Oxysome of mitochondria are concerned with :-
(A) Photophosphorylation (B) Oxidative phosphorylation
(C) Photorespiration (D) Digestion

25. Ribophorin occur on the surface of :-
(A) Rough E.R. (B) Smooth E.R. (C) Golgi body (D) None

26. GERL concerned with the biogenesis of :-
(A) Golgibody (B) E.R. (C) Mitochondria (D) Lysosomes

27. Which cell organelles takes part in the formation of lysosomes :-
(A) Endoplasmic reticulum (B) Golgi bodies
(C) Both 1 and 2 (D) Mitochondria

28. During germination which cell organelle converts fatty acid into soluble carbohydrate :-
(A) Peroxisome (B) Glyoxysome (C) Sphaerosomes (D) Lysosome

29. The main organelle involved in modification and routing of newly synthesized proteins to their destinations is :-
(A) Endoplasmic Reticulum (B) Lysosome
(C) Mitochondria (D) Chloroplast

30. Detoxification of lipid soluble drugs and other harmful compounds, in endoplasmic reticulum is carried out by :-
(A) Cytochrome P450 (B) Cytochrome bf (C) Cytochrome c (D) Cytochrome $a_1 - a_3$

31. Elioplasts absent in :-
(A) Potato (B) Cocos nucifera (C) Arachis hypogea (D) Helianthus

32. In higher plants, the chloroplast are :-
(A) Discoidal or oval (B) Spiral (C) Cupshaped (D) Reticulate

33. Mitochondria and chloroplast are considered to be endosymbionts of cell because they :-

(A) Possess their own nucleic acid (B) Have capacity of ATP synthesis
(C) Do not reproduce (D) All the above

34. In which tubulin protein is not present :-
(A) Plasma membrane (B) Cilia (C) Flagella (D) Microtubules

35. The peroxisomes are associated with the phenomenon of :-
(A) Oxidative anabolism (B) De-gradation of H_2O
(C) Anaerobic respiration (D) Photorespiration and degradation of H_2O_2

36. "Palade particles" are :-
(A) Ribosomes (B) Golgi vesicles (C) Lysosomes (D) Sphaerosomes

37. Red colour of tomato and chilly is due to :-
(A) Lycopene in chloroplast (B) Xanthophylls in chromoplast
(C) Lycopene in chromoplast (D) Anthocyanin in leucoplast

38. Polysome is a chain of :-
(A) Pinesomes (B) Phagosomes (C) Microsomes (D) Ribosomes

39. Anthocyanin pigment occurs in :-
(A) Chromoplasts (B) Amyloplasts (C) Cytoplasm (D) Cell sap

40. Basal body is :-
(A) Centriole (B) Plastid (C) Cilia (D) Mitochondria

41. Colour of pericarp and petals is due to :-
(A) Chloroplast (B) Chromoplast (C) Leucoplast (D) Etioplast

42. Arrangement of microtubules in centriole is :-
(A) 9 + 2 (B) 2 + 9 (C) 11 + 0 (D) 9 + 0

43. Smallest cell organelle is :-
(A) Lysosome (B) Centrosome (C) Ribosome (D) Golgibody

44. Which of following is not common in chloroplasts & mitochondria ?
(A) Both are present in animal cells (B) Both contain their own genetic material
(C) Both are present in eukaryotic cells (D) Both are present in plant cells

45. Cell organelle which is called cell engine is :-
(A) Ribosome (B) Lysosome (C) Vacuoles (D) Endoplasmic reticulum

46. Functional unit of Chloroplast is :-
(A) Stroma (B) Quantasome (C) Oxysomes (D) Peroxysomes

47. Which of the following pair lack the unit membrane :-
(A) Nucleus & E.R. (B) Mitochondria & chloroplast
(C) Ribosome & nucleolus (D) Golgi body & lysosome

48. Golgibody is concerned with :-
(A) Respiration (B) Secretion (C) Excretion (D) Degradation

49. In which one of the following would you expect to find glyoxysomes ?
(A) Endosperm of wheat (B) Endosperm of castor
(C) Palisade cells in leaf (D) Root hairs

50. Genome is :-
(A) Part of chromosome (B) Half chromosome
(C) Total DNA in cell (D) A complete set of chromosomes

51. A complete set of chromosomes inherited as an unit from one parent is known as :-
(A) Karyotype (B) Gene pool (C) Genotype (D) Genome

52. Chromosomes composed of :-
(A) DNA, RNA, Histones, Non histones (B) DNA and Histones
(C) DNA and RNA (D) DNA, RNA and Histones

53. Which part of chromosome is concern with ageing of organism and cancer :-
(A) Centromere (B) Telomere (C) Kinetochore (D) Satellite

54. Nucleus controls the activity of cytoplasm by sending :-
(A) Enzymes (B) CAMP (C) Hormones (D) RNA

55. In a human cell 2-2 metre long thread of DNA distributed in :-
(A) One chromosome (B) 23 chromosome (C) X chromosome (D) 46 chromosome

56. If the centromere is sub-median the two arms are unequal then the chromosome is called as :-
(A) Metacentric (B) Submetacentric (C) Acrocentric (D) Telocentric

57. Nucleolus is formed by :-
(A) Mitochondria (B) Nucleus and Ribosome
(C) Primary constriction (D) Secondary constriction

58. Part of Chromosome which joins with spindle fibres is :-
(A) Chromatid (B) Chromonema (C) Chromomere (D) Centromere

59. Protein synthesis in an animal cell occurs :-
(A) On ribosomes present in cytoplasm as well as in mitochondira
(B) On ribosomes present in the nucleolus as well as in cytoplasm
(C) Only on ribosomes attached to the nuclear envelope and endoplasmic reticulum
(D) Only on the ribosomes present in cytosol

60. Telomerase is an enzyme which is a :-
(A) RNA (B) Ribonucleoprotein (C) Repetitive DNA (D) Simple protein

EXERCISE – 2

1. Select the incorrect statement.
(A) Prokaryotic cells are smaller in size and multiply much faster than eukaryotic cells
(B) All cells arise from pre-existing cells
(C) The organization of the prokaryotic cell is fundamentally different so they exhibit more variety of shape and function
(D) Living organisms are composed of cells and products of cells

2. Match the items of column-I with column-II.

	Column-I		Column-II
(a)	Mesosome	(i)	Bacterial transformation
(b)	Plasmids	(ii)	Translate mRNA

(A) Statement 1 is incorrect (B) Statement 2 is incorrect
(C) Both statements are incorrect (D) Both statements are correct

7. Choose the mismatched pair.
(A) Microbodies – Non – membrane bound vesicles present in both plant and animal cells
(B) Satellite – Non – staining secondary constriction at constant location
(C) Centromere – Primary constriction
(D) Lysosomes – Optimally active at acidic pH

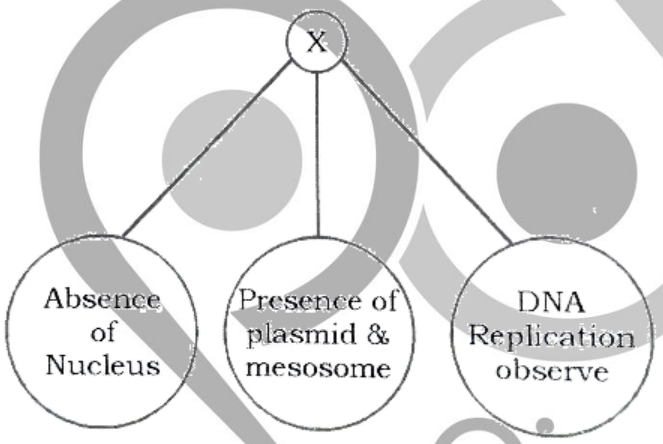
8. Which of the following organelles lack membrane ?
1. Centriole 2. Flagella 3. Ribosome 4. Microbodies
5. Vacuoles 6. Lysosomes
(A) 1 & 2 (B) 4 & 5 (C) 1 & 3 (D) 4 & 6

9. What would you expect to happen. If you removed the cell wall from a plant cell and placed into water :
(A) The cell would begin to grow (B) The cell would shrink
(C) The cell would brust (D) Nothing would happen

10. Which group of the following organelles involved in the manufacturing substances needed by a cell ?
(A) Lysosome, Vacoule, Ribosome (B) Vacoule, R.E.R., S.E.R.
(C) Ribosome, R.E.R., S.E.R. (D) R.E.R. lysosome, Vacoule

11. Which of the following statement is false ?
(A) Both the centriole in centrosome lie perpendicular to each other
(B) Central proteinaceous hub is missing in a centriole
(C) Each centriole has an organization like that of a cartwheel
(D) Centrosome contains two cylindrical centrioles

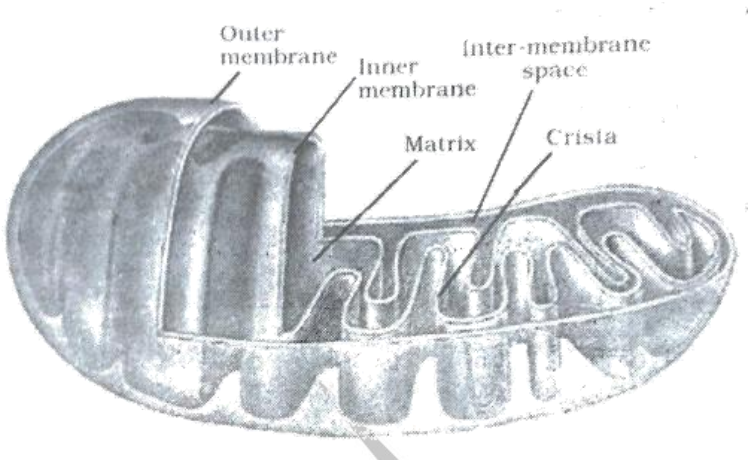
12. Which organism is most appropriataly represents by X ?



(A) Bacteria (B) Animal (C) Virus (D) Plant

13. N-acetyl glucosamine is -
(A) A chemically modified sugar
(B) A chemically modified amino acid
(C) A steroids derivative
(D) A chemically modified phospholipid

14. Following is ultrastructure of mitochondrian in this structure site for oxidative phosphorylation and krebs cycle is :

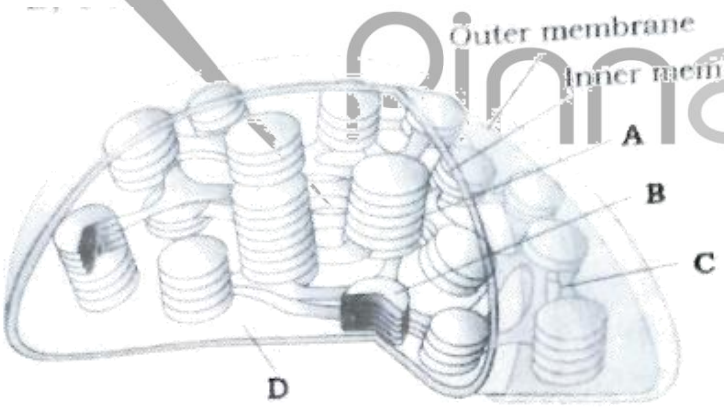


(A) Outermembrane and matrix (B) Innermembrane and matrix
(C) Intermembrane speace and F1 particle (D) Outermembrane nad innermembrane

15. What is common between chloroplasts, chromoplasts and leucoplasts ?
(A) Presence of pigments
(B) Possession of thylakoid and grana
(C) Storage of starch, proteins and lipids
(D) Ability to multiply by a fission-like process

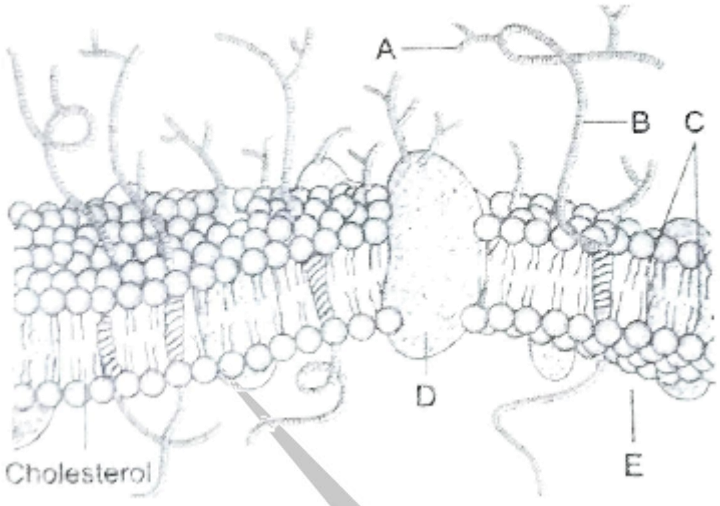
16. Organelle important in spindle formation during nuclear division is :
(A) Golgi body (B) Chloroplast (C) Centrosome (D) Mitochondrion

17. Which of the following option correctly match A, B, C and D indicated in the diagram :



(A) A-Thylakoid, B-Stromal lamella, C-Stroma, D-Granum
(B) A-Granum, B-Thylakoid, C-Stromal lamella, D-Stroma
(C) A-Thylakoid, B-Granum, C-Stromal lamella, D-Stroma
(D) A-Granum, B-Thylakoid, C-Stroma, D-Stromal lamella

18. Match the components A, B, C, D and E in the diagram (cell membrane) below from the list (i) to (vii) :



I. Sugar II. Protein III. Lipid bilayer IV. Integral protein
V. Cytoplasm VI. Cell wall VII. External protein

(A) A-I, B-II, C-III, D-IV, E-V
(B) A-II, B-I, C-III, D-IV, E-V
(C) A-I, B-II, C-III, D-IV, E-VI
(D) A-I, B-II, C-III, D-VII, E-V

19. Which of the following is correct for Golgi apparatus
(A) Possess enzymes which is functional at a pH of 4.6-5
(B) A number of proteins synthesized by ribosomes on the ER fuse with the trans-face of Golgi and move towards the forming face
(C) The cis-face of Golgi remains in close association with ER
(D) It possess almost all types of hydrolytic enzymes

20. The 'Power house' of cell :
(A) is bound by a single membrane
(B) possess cristae which are extension of its outer membrane
(C) are sites of formation of 'energy currency' of the cell
(D) is found in eukaryotic and prokaryotic cells

21. The arrangement of microtubules of a flagellum (F) and a basal body (B) in eukaryotes is :
(A) F = 9 + 2, B = 9 + 2 (B) F = 8 + 2, B = 5 + 4
(C) F = 9 + 0, B = 9 + 2 (D) F = 9 + 2, B = 9 + 0

22. Read the following statements :
(i) Peroxisomes are involved in photorespiration of the non-green cell of plants and also performs β-oxidation of fatty acids in animal cells
(ii) Mitochondria possess enzymes for the β-oxidation of fatty acids
(iii) The fluid-mosaic model of plasma membrane explains both structural and functional aspects
(iv) The movement of cilia and flagella is due to the presence of dynein proteins
(v) Lysosomes originates from Golgi
How many of the above statements are correct ?

(A) Two (B) Three (C) Four (D) Five

23. Select the wrong match :

(A) Aleuroplast – protein storage
(B) Elaioplast – fat/oil storage
(C) Amyloplast – starch storage
(D) Elioplast – chlorophyll storage

24. Centrioles arise :

(A) De novo
(B) From pre-existing centrioles
(C) From Golgi
(D) From Flagelle

25. Choose the correct option for the chromosome given below :

	Number of Chromatids	Number of arms	Number of centromere	Number of kinetochore	Number of telomere
(A)	4	2	2	4	2
(B)	2	2	1	4	4
(C)	2	4	1	2	4
(D)	2	4	2	4	2

26. Choose the incorrect statement for sphaerosome :

(A) It is single membrane bound
(B) Participates in lipid/oil storage
(C) It is absent in plants but present in animals
(D) Occur abundantly in endosperm of oil seeds

27. Which of the following is not incorrect ?

(A) The ribosome of chloroplast is larger than the cytoplasmic ribosome
(B) The inner membrane of chloroplast is relatively less permeable in comparison to the outer membrane
(C) The space limited by the inner membrane of chloroplast is called intermembrane space
(D) The lumen of thylakoid contain ribosome

28. Read the following statements :

(i) Cilia work like oars
(ii) Cilia are relatively longer than flagella

(iii) Prokaryotic and eukaryotic flagella are structurally similar
(iv) Cilia and flagella are covered with plasma membrane in eukaryotes
(v) The core of cilia/Flagella is called axoneme which has nine pairs of doublets of radially arranged peripheral microtubules and a pair of centrally located microtubules
How many of the above statements are correct ?
(A) Three (B) Two (C) Four (D) Five

29. Select the correct statement for nucleolus :
(A) It is a site for mRNA synthesis
(B) Large and more numerous nucleoli are present in cells actively carrying out protein synthesis
(C) Nucleolus contain cytoplasm
(D) Nucleolus is a single membrane bound structure

30. Sometimes a few chromosomes have non-staining secondary constriction at a constant location. They gives the appearance of a small fragment beyond the secondary constriction called
(A) Centriole (B) Centromere (C) Satellite (D) Both (B) and (C)

31. Select wrong matching
(A) SER – concerned with lipid and steroidal hormone synthesis.
(B) Cell wall – outer non living rigid structure which gives shape to the cell and protects from mechanical damage and infection.
(C) Centriole – both he perpendicular to each other and each has an organization like the cart wheel.
(D) Mitochondria – responsible for trapping light energy for the synthesis of sugar.

32. In plants, the tonoplast facilitates the transport of a number of ions and other materials
(A) Against concentration gradient into vacuole
(B) Along concentration gradient into vacuole
(C) Along concentration gradient into gas vacuoles
(D) Against concentration gradient in lysosome

33. The larger sub unit of a ribosome is found to contain 23S and 5S type of RNA. This ribosome is found in
(A) Bacterium (B) Mitochondrion (C) Chloroplast (D) All of these

34. Which of the following statement is incorrect ?
(A) Unicellular organisms are capable of independent existence
(B) Any structure less than a complete structure of a cell does not ensure independent living
(C) Matthias Schleiden, a German zoologist, proposed that body of animal are composed of cells and products of cell
(D) Schleiden and Schwann together formulated the cell theory

35. Choose the correct statement :
(A) Ribosomes never attach to endoplasmic reticulum

(B) Centriole is non-membranous and commonly found in plant cells
(C) Cytoplasm is the main arena of cellular activities in both plant and animal cells
(D) Prokaryotic cells commonly possess both membrane-less as well as membrane-bound cell organelles

36. Which one is true for mesosome ?
(A) These are extensions in the form of vesicles, tubules and lamella
(B) They help in cell wall formation, DNA replication and distribution to daughter cells
(C) They help in respiration, secretion, increases surface area of plasma membrane and exzymatic content
(D) All are correct

37. The bacterial cell envelope consisting of a tightly bound three layered structure from outside to inside is :
(A) Cell wall $\rightarrow$ Glycocalys $\rightarrow$ Plasma membrane
(B) Plasma membrane $\rightarrow$ Glycocalyx $\rightarrow$ Cell wall
(C) Glycocalyx $\rightarrow$ Cell wall $\rightarrow$ Plasma membrane
(D) Glycocalyx $\rightarrow$ Plasma membrane $\rightarrow$ Cell wall

38. Polyribosomes or polysomes represent :
(A) Microbdies like glyoxysomes
(B) Ribosomes and snRNA
(C) Aggregation of rRNA
(D) Several ribosomes attached to a single mRNA forming a chain

39. Correctly arrange the sequence of gram staining in bacteria :
1. Treated with alcohol
2. Excess stain washed with water
3. Stain with crystal violet dye
4. 0.5% iodine added
5. Observe under microscope
(A) $2 \rightarrow 3 \rightarrow 4 \rightarrow 1 \rightarrow 5$
(B) $3 \rightarrow 1 \rightarrow 2 \rightarrow 5 \rightarrow 4$
(C) $3 \rightarrow 1 \rightarrow 2 \rightarrow 5 \rightarrow 4$
(D) $3 \rightarrow 2 \rightarrow 4 \rightarrow 1 \rightarrow 5$

40. When a lysosome fuses with a phagosome/food, it results in the formation of -
(A) Secondary lysosome
(B) Primary lysosome
(C) Autophagic vacuole
(D) Residual body

41. Microtubules takes part in -
(A) Formation of spindle fibres
(B) Movement of cilia and flagella
(C) Both (A) and (B)
(D) Cyclosis

42. Arrange the following structure according to their size-mycoplasma, virus, bacteria, RBC
Correct option is :
(A) RBC > mycoplasma > bacteria > virus
(B) RBC > bacteria > mycoplasma > virus
(C) Bacteria > RBC > mycoplasma > virus
(D) Virus > bacteria > mycoplasma > RBC

43. Function of diplosome is

(A) osmoregulation (B) respiration (C) protein synthesis (D) flagella formation

44. The spherical head of the oxysome is :

(A) F_0 subunit (B) F_1 subunit (C) dictyosomes (D) granum

45. Consider the following statements :

(a) In prokaryotic cells, a special membranous structure formed by the extension of the plasma membrane into the cell is known as polysome

(b) The smooth endoplasmic reticulum is the major site for synthesis of glycoproteins

(c) RuBisCo is the most abundant protein in the whole of biospheres

(d) Mitochondria, chloroplasts and peroxisomes are not considered as part of endomembrane system.

Of the above statement :

(A) c and d alone are correct (B) a and b alone are correct

(C) b and c alone are correct (D) a and d alone are correct

46. Consider the following statement :

(a) Plant cells have centrioles which are absent in almost all animal cells

(b) Ribosomes are the site of protein synthesis

(c) The middle lamella is a layer mainly of calcium carbonate which holds the different neighbouring cells cells together

(d) In animal cell steroidal hormones are synthesized by smooth endoplasmic reticulum

Of the above statements :

(A) a and b only are correct (B) c and d only are correct

(C) b and d only are correct (D) a and d only are correct

47. The cell organelle associated with intercellular digestion of macromolecules is :

(A) lysosome (B) peroxisome (C) dictyosome (D) glyoxysome

48. Read the following statement and identify the correct options given :

(a) Sap vacuoles – contain digestive enzymes with the help of which nutrients are digested

(b) Contracille vacuoles – take part in osmoregulation and excretion

(c) Food vacuoles – store and concentrate mineral salts as well as nutrients

(d) Air vacuoles – store and concentrate mineral salts as well as nutrients

(A) a and b are correct (B) a and c are correct (C) a and d are correct (D) b and c are correct

49. Ribosomes are found in all except :

(A) bacteria (B) mictochondria (C) plastid (D) G.B

50. The cell theory is not applicable to :

(A) fungi (B) RBC of camel (C) lichens (D) virus

51. Match the following :

	Column-I		Column-II
(a)	bacteria	(i)	synthesis and storage of lipids
(b)	sphaerosomes	(ii)	ideogram
(c)	chloroplasts	(iii)	glycocalyx
(d)	karyotype	(iv)	thylakoids

(A) a-iii, b-i, c-ii, d-iv (B) a-iv, b-iii, c-ii, d-i (C) a-i, b-ii, c-iii, d-iv (D) a-iii, b-i, c-iv, d-ii

52. Match the following and choose the correct combination from the options given below :

	Cell organelle		Function
(a)	Endoplasmic reticulum	(i)	Take part in cellular respiration
(b)	Free ribosome	(ii)	Take part in osmoregulation and excretion
(c)	Mitochondrion	(iii)	Synthesis of lipids
(d)	Contractile vacuole	(iv)	Synthesize non secretory proteins

(A) a-iii, b-iv, c-i, d-ii (B) a-i, b-ii, c-iv, d-iii (C) a-iii, b-iv, c-ii, d-i (D) a-iii, b-ii, c-i, d-iv

53. The water soluble material pass through the proteins called :
(A) glycoprotein (B) extrinsic proteins (C) spectrin (D) channel proteins

54. The crystals of calcium carbonate deposit in the cell is called :
(A) aleurone (B) crystalloid (C) coretype (D) cystolith

55. Function of centrosome is
(A) osmoregulation (B) respiration (C) protein synthesis (D) spindle formation

56. Which of the following is associated with the structure of Golgi complex ?
(A) cristae (B) cisternae (C) quantasome (D) spheroplast

57. β-oxidation of fatty acids occurs in :
(A) glyoxysomes (B) golgi apparatus (C) mitochondria (D) peroxisomes

58. Which of following is found in mitochondria -
(A) nucleus (B) F_1 subunit (C) dictyosomes (D) granum

59. Microfilaments are composed mainly of a protein called :
(A) tubulin (B) actin (C) keratin (D) myosin

60. Which one is correct about S-phase of cell cycle
(A) It occurs between G_1 and G_2
(B) It marks the period during which DNA replicates
(C) At the end of this phase DNA is doubled but the number of chromosomes remains unchanged
(D) All of these

EXERCISE – 3

1. The plasma membrane consists mainly of :
(A) proteins embedded in a carbohydrate bilayer
(B) phospholipids embedded in a protein bilayer
(C) proteins embedded in a phospholipid bilayer
(D) proteins embedded in a polymer of glucose molecules

2. Which one of the following structures between two adjacent cells is an effective transport pathway ?
(A) Plasmalemma (B) Plasmodesmata (C) Plastoquinones (D) Endoplasmic reticulum

3. Which one of the following has its own DNA ?
(A) Peroxisome (B) Mitochondria (C) Dictyosome (D) Lysosome

4. The main arena of various types of activities of a cell is :
(A) Nucleus (B) Plasma membrane (C) Mitochondria (D) Cytoplasm

5. Algae have cell wall made up of :
(A) Cellulose, hemicellulose and pectins (B) Cellulose, galactans and mannans
(C) Hemicellulose, pectins and proteins (D) Pectins, cellulose and proteins

6. An elaborate network of filamentous proteinaceous structures present in the cytoplasm which helps in the maintenance of cell shape is called :
(A) Endosplasmic reticulum (B) Plasmalemma
(C) Cytoskeleton (D) Thylakoid

7. Identify the components labeled A, B, C and D in the diagram below from the list (i) to (viii) given with components :

(i) Cristae of mitochondria (ii) Inner membrane of mitochondria
(iii) Cytoplasm (iv) Smooth endoplasmic reticulum

(v) Rough endoplasmic reticulum (vi) Mitochondrial matrix
(vii) Cell vacuole (viii) Nucleus
The correct component are :

	A	B	C	D
(A)	(i)	(iv)	(viii)	(vi)
(B)	(vi)	(v)	(iv)	(vii)
(C)	(v)	(i)	(iii)	(ii)
(D)	(v)	(iv)	(viii)	(iii)

8. Singer & Nicolson are associated with :-
(A) Cell theory (B) Chromosomal theory of inheritance
(C) Fluid mosaic model (D) Unit membrane theory

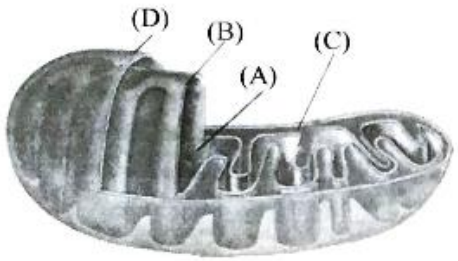
9. Important site for formation of glycoproteins and glycolipids is :-
(A) Vacuole (B) Golgi apparatus (C) Plastid (D) Lysosome

10. Peptide synthesis inside a cell takes place in :-
(A) Chloroplast (B) Mitochondria (C) Chromoplast (D) Ribosomes

11. In eubacteria, a cellular component that resembles eukaryotic cell is :-
(A) Plasma membrane (B) Nucleus (C) Ribosomes (D) Cell wall

12. Which one of the following is not considered as a part of the endomembrane system ?
(A) Lysosome (B) Golgi complex (C) Peroxisome (D) Vacuole

13. The figure below shows the structure of a mitochondria with its four parts labeled (A), (B), (C) and (D). Select the part correctly matched with its function.



(A) Part (A) : Matrix-major site for respiratory chain enzymes
(B) Part (B) : Outer membrane-gives rise to inner membrane by splitting
(C) Part (C) : Inner membrane-forms infoldings called cristae
(D) Part (C) : Cristae-possess single circular DNA molecule and ribosome

14. Cell theory was proposed by :-
(A) A Botanist (B) A Zoologist
(C) A Botanist and Zoologist (D) A Psychologist

15. Select the correct statement from the following regarding cell membrane :-
(A) Lipids are arranged in a bilayer with polar heads towards the inner part
(B) Fluid mosaic model of cell membrane was proposed by Singer and Nicolson
(C) Na^+ and K^+ ions move across cell membrane by passive transport
(D) Proteins make up 60 to 70% of the cell membrane

16. What is true about ribosomes ?
(A) These are found only in eukaryotic cells
(B) These are self-splicing introns of some RNAs
(C) The prokaryotic ribosomes are 80 S where "S" stands for sedimentation coefficient
(D) These are composed of ribonucleic acid and proteins

17. Ribosomal RNA is actively synthesized in :-
(A) Nucleoplasm (B) Ribosomes (C) Lysosomes (D) Nucleolus

18. Which one of the following cellular parts is correctly described ?
(A) Ribosomes – those on chloroplasts are larger (80 S) while those in the cytoplasm are smaller (70S)
(B) Lysosome-optimally active at a pH of about 8.5
(C) Thlakoids-flattened membranous sacs forming the grana of chloroplasts
(D) Centrioles-sites for active RNA synthesis

19. Which one of the following structures is an organelle within an organelle ?
(A) E.R. (B) Mesosome (C) Ribosome (D) Peroxisome

20. The Golgi complex plays a major role :-
(A) in post translational modification of proteins and glycosidation of lipids
(B) in trapping the light and transforming it into chemical energy
(C) in digesting proteins and carbohydrates
(D) as energy transferring organelles

21. A major site for synthesis of lipids is :-
(A) Nucleoplasm (B) RER (C) SER (D) Symplast

22. Which one of the following organelle in the figure correctly matches with its function ?

(A) Rough endoplasmic reticulum, protein synthesis
(B) Rough endoplasmic reticulum, formation of glycoproteins
(C) Golgi apparatus, protein synthesis
(D) Golgi apparatus, formation of glycolipids

23. In plant and animal cells, chromatids or chromatin are made up of :-
(A) Only DNA (B) DNA, RNA and Histone

(C) DNA, RNA, Protein and some fat bodies (D) DNA, RNA, Histone and non histones

24. Which structures perform the function of mitochondria in bacteria ?
(A) Nucleoid (B) Ribosomes (C) Cell wall (D) Mesosomes

25. The solid linear cytoskeletal elements having a diameter of 6 nm and made up of a single type of monomer are known as :
(A) Microtubules (B) Microfilaments
(C) Intermediate filaments (D) Lamins

26. The osmotic expansion of a cell kept in water is chiefly regulated by :-
(A) Mitochondria (B) Vacuoles (C) Plastids (D) Ribosomes

27. Match the following and select the correct answer :-

(a) Centriole	(i) Infoldings in mitochondria
(b) Chlorophyll	(ii) Thylakoids
(c) Cristae	(iii) Nucleic acids
(d) Ribozymes	(iv) Basal body cilia or flagella

	a	b	c	d
(A)	(iv)	(ii)	(i)	(iii)
(B)	(i)	(ii)	(iv)	(iii)
(C)	(i)	(iii)	(ii)	(iv)
(D)	(iv)	(iii)	(i)	(ii)

28. DNA is not present in :-
(A) Ribosomes (B) Nucleus (C) Mitochondria (D) Chloroplast

29. Nuclear envelope is a derivative of :-
(A) Membrane of Golgi complex (B) Microtubules
(C) Rough endoplasmic reticulum (D) Smooth endoplasmic reticulum

30. The structures that are formed by stacking of organized flattened membranous sacs in the chloroplasts are :-
(A) Grana (B) Stroma lamellae (C) Stroma (D) Cristae

31. The chromosomes in which centromere is situated close to one end are :-
(A) Acrocentric (B) Telocentric (C) Sub-metacentric (D) Metacentric

32. Which one of the following is not an inclusion body found in prokaryotes ?
(A) Cyanophycean granule (B) Glycogen granule
(C) Polysome (D) Phosphate granule

33. Select the correct matching in the following pairs :-

(A) Smooth ER – Synthesis of lipids (B) Rough ER – Synthesis of glycogen
(C) Rough ER – Oxidation of fatty acids (D) Smooth ER – Oxidation of phospholipids

34. Which of the following structures is not found in prokaryotic cells ?
(A) Plasma membrane (B) Nuclear envelope (C) Ribosome (D) Mesosome

35. Which of the following are not membrane-bound ?
(A) Mesosomes (B) Vacuoles (C) Ribosomes (D) Lysosomes

36. Cellular organelles with membranes are :-
(A) Lysosomes, Golgi apparatus and mitochondria
(B) Nuclei, ribosomes and mitochondria
(C) Chromosomes, ribosomes and endoplasmic reticulum
(D) Endoplasmic reticulum, ribosomes and nuclei

37. A protoplast is a cell :-
(A) without cell wall (B) without plasma membrane
(C) without nucleus (D) undergoing division

38. Match the columns and identify the correct option :-

	Column-I		**Column-II**
(a)	Thylakoids	(i)	Disc-shaped sacs in Golgi apparatus
(b)	Cristae	(ii)	Condensed structure of DNA
(c)	Cisternae	(iii)	Flat membranous sacs in stroma
(d)	Chromatin	(iv)	Infoldings in mitochondria

	a	b	c	d
(A)	(iii)	(iv)	(ii)	(i)
(B)	(iv)	(iii)	(i)	(ii)
(C)	(iii)	(iv)	(i)	(ii)
(D)	(iii)	(i)	(iv)	(ii)

39. rRNA is synthesised in :-
(A) Nucleus (B) Golgi body (C) Cytoplasm (D) Nucleoplasm

40. Telomere shortening during cell divisions signifies :-
(A) Cellular aging
(B) Loss of base pair from chromosomal ends
(C) Decrease replication potential of cells
(D) All of these

41. Mitochondria and chloroplast are :-
(a) semi-autonomous organelles

(b) formed by division of pre-existing organelles and they contain DNA but lack protein synthesizing machinery

Which one of the following options is correct ?

(A) Both (a) and (b) are correct
(B) (b) is true but (a) is false
(C) (a) is true but (b) is false
(D) Both (a) and (b) are false

42. Microtubules are the constituents of :-

(A) Cilia, Flagella and Peroxisomes
(B) Spindle fibers, Centrioles and Cilia
(C) Centrioles, Spindle fibers and Chromatin
(D) Centrosome, Nucleosome and Centrioles

43. A complex of ribosomes attached to a single strands of RNA is known as :-

(A) Polysome (B) Polymer (C) Polypeptide (D) Okazaki fragment

44. Which one of the following cell organelles is enclosed by a single membrane ?

(A) Mitochondria (B) Chloroplasts (C) Lysosomes (D) Nuclei

45. Water soluble pigments found in plant cell vacuoles are :-

(A) Xanthophylls (B) Chlorophylls (C) Carotenoids (D) Anthocyanins

46. Spindle fibers attach on to :-

(A) Telomere of the chromosome
(B) Kinetochore of the chromosome
(C) Centromere of the chromosome
(D) Kinetosome of the chromosome

47. One of the major components of cell wall of most fungi is :-

(A) Chitin (B) Peptidoglycan (C) Cellulose (D) Hemicellulose

48. Which of the following statements is not true for cancer cells in relation to mutations ?

(A) Mutations in proto-oncogenes accelerate the cell cycle.
(B) Mutations destroy telomerase inhibitor.
(C) Mutations inactive the cell control.
(D) Mutations inhibit production of telomerase.

49. A cell organelle containing hydrolytic enzymes is :-

(A) Ribosome (B) Mesosome (C) Lysosome (D) Microsome

50. Which of the following rRNAs acts as structural RNA as well as ribozyme in bacteria ?

(A) 18 S rRNA (B) 23 S rRNA (C) 5.8 S rRNA (D) 5 S rRNA

51. Which of the following components provides sticky character to the bacterial cell ?

(A) Nuclear membrane (B) Plasma membrane

(C) Glycocalyx (D) Cell wall

52. Which of the following cell organelles is responsible for extracting energy from carbohydrates to form ATP ?
(A) Ribosome (B) Chloroplast (C) Mitochondrion (D) Lysosome

53. Which of the following is true for nucleolus ?
(A) It takes part in spindle formation
(B) It is a site for active ribosomal RNA synthesis
(C) It is a membrane-bound structure
(D) Larger nucleoli are present in dividing cells

54. The Golgi complex participates in :-
(A) Respiration in bacteria (B) Activation of amino acid
(C) Formation of secretory vesicles (D) Fatty acid breakdown

55. Nissl bodies are mainly composed of :-
(A) Nucleic acids and SER (B) Free ribosomes and RER
(C) DNA and RNA (D) Proteins and lipids

56. Which among the following is not a prokaryote ?
(A) Nostoc (B) Oscillatoria (C) Mycobacterium (D) Saccharomyces

57. The correct sequence of phases of cell cycle is :-
(A) $M \rightarrow G_1 \rightarrow G_2 \rightarrow S$ (B) $G_1 \rightarrow G_2 \rightarrow S \rightarrow M$
(C) $S \rightarrow G_1 \rightarrow G_2 \rightarrow M$ (D) $G_1 \rightarrow S \rightarrow G_2 \rightarrow M$

58. Which of the following statements is not correct ?
(A) Lysosomes have numerous hydrolytic enzymes
(B) The hydrolytic enzymes of lysosomes are active under acidic pH
(C) Lysosomes are membrane bound structures
(D) Lysosomes are formed by the process of packaging in the endoplasmic reticulum

59. Which of the following pair of organelles does not contain DNA ?
(A) Mitochondria and Lysosomes (B) Chloroplast and Vacuoles
(C) Lysosomes and Vacuoles (D) Nuclear envelope and Mitochondria

60. Which of the following statements regarding mitochondria is incorrect ?
(A) Outer membrane is permeable to monomers of carbohydrates, fats and proteins.
(B) Enzymes of electron transport are embedded in outer membrane.
(C) Inner membrane is convoluted with infoldings.
(D) Mitochondrial matrix contains single circular DNA molecule and ribosomes.

ANSWER KEY

EXERCISE-I

1.	(D)	**2.**	(D)	**3.**	(C)	**4.**	(B)	**5.**	(B)	**6.**	(D)	**7.**	(A)
8.	(D)	**9.**	(A)	**10.**	(B)	**11.**	(D)	**12.**	(D)	**13.**	(C)	**14.**	(A)
15.	(D)	**16.**	(A)	**17.**	(A)	**18.**	(D)	**19.**	(C)	**20.**	(B)	**21.**	(A)
22.	(B)	**23.**	(B)	**24.**	(B)	**25.**	(A)	**26.**	(D)	**27.**	(C)	**28.**	(B)
29.	(A)	**30.**	(A)	**31.**	(A)	**32.**	(A)	**33.**	(A)	**34.**	(A)	**35.**	(D)
36.	(A)	**37.**	(C)	**38.**	(D)	**39.**	(D)	**40.**	(A)	**41.**	(B)	**42.**	(D)
43.	(C)	**44.**	(A)	**45.**	(A)	**46.**	(B)	**47.**	(C)	**48.**	(B)	**49.**	(B)
50.	(D)	**51.**	(D)	**52.**	(A)	**53.**	(B)	**54.**	(D)	**55.**	(D)	**56.**	(B)
57.	(D)	**58.**	(D)	**59.**	(A)	**60.**	(B)						

EXERCISE-II

1.	(C)	**2.**	(A)	**3.**	(B)	**4.**	(C)	**5.**	(A)	**6.**	(D)	**7.**	(A)
8.	(C)	**9.**	(C)	**10.**	(C)	**11.**	(B)	**12.**	(A)	**13.**	(A)	**14.**	(B)
15.	(D)	**16.**	(C)	**17.**	(B)	**18.**	(A)	**19.**	(C)	**20.**	(C)	**21.**	(D)
22.	(C)	**23.**	(D)	**24.**	(B)	**25.**	(C)	**26.**	(C)	**27.**	(B)	**28.**	(A)
29.	(B)	**30.**	(C)	**31.**	(D)	**32.**	(A)	**33.**	(D)	**34.**	(C)	**35.**	(C)
36.	(D)	**37.**	(C)	**38.**	(D)	**39.**	(D)	**40.**	(A)	**41.**	(C)	**42.**	(B)
43.	(D)	**44.**	(B)	**45.**	(A)	**46.**	(C)	**47.**	(A)	**48.**	(D)	**49.**	(D)
50.	(D)	**51.**	(D)	**52.**	(A)	**53.**	(D)	**54.**	(D)	**55.**	(D)	**56.**	(B)
57.	(C)	**58.**	(B)	**59.**	(B)	**60.**	(D)						

EXERCISE-III

1.	(C)	**2.**	(B)	**3.**	(B)	**4.**	(D)	**5.**	(B)	**6.**	(C)	**7.**	(D)
8.	(C)	**9.**	(B)	**10.**	(D)	**11.**	(A)	**12.**	(C)	**13.**	(C)	**14.**	(C)
15.	(B)	**16.**	(D)	**17.**	(D)	**18.**	(C)	**19.**	(C)	**20.**	(A)	**21.**	(C)
22.	(A)	**23.**	(D)	**24.**	(D)	**25.**	(B)	**26.**	(B)	**27.**	(A)	**28.**	(A)
29.	(C)	**30.**	(A)	**31.**	(A)	**32.**	(C)	**33.**	(A)	**34.**	(B)	**35.**	(C)
36.	(A)	**37.**	(A)	**38.**	(C)	**39.**	(D)	**40.**	(D)	**41.**	(C)	**42.**	(B)
43.	(A)	**44.**	(C)	**45.**	(D)	**46.**	(B)	**47.**	(A,D)	**48.**	(C)	**49.**	(C)
50.	(B)	**51.**	(C)	**52.**	(C)	**53.**	(B)	**54.**	(C)	**55.**	(D)	**56.**	(D)
57.	(D)	**58.**	(D)	**59.**	(C)	**60.**	(B)						