Cell: The unit of life
SOLUTIONS

LEVEL-I (CLASS WORK)

CELL THEORY

1. (1) All living organisms are composed of cells and products of cells according to cell theory.
(2) All cells arise from pre-existing cells, as proposed by Schleiden and Schwann's cell theory.
(3) Human RBCs are about 3-5 mm in diameter.
(1) Only (2) is correct (2) (1) and (3) are correct
(3) (1) and (2) are incorrect (4) (2) and (3) are incorrect
XI NCERT, Page no. 126 & 127

2. Cell theory was proposed by Schleiden and Schwann but has not included that _____.
(1) functions of an organism is an outcome of metabolic activities
(2) *omnis cellula-e-cellula*
(3) organisms are composed of cells and their products
(4) cell is fundamental unit of life
XI NCERT, Page no. 126

OVERVIEW OF CELL

3. In human beings, the membrane of erythrocyte has _____.
(1) approximately 40% proteins and 52% lipids
(2) cephalin on the outer side and lecithin on the inner side
(3) approximately 52% proteins and 40% lipids
(4) lecithin on the outer side and cephalin on the inner side
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PROKARYOTIC CELL

4. Select the incorrect statement wrt prokaryotic cells
(1) Cytoplasm lacks membrane bound organelles.
(2) Sap vacuoles are absent.
(3) Chromosome possesses acidic protein i.e., polyamine
(4) Presence of extra-chromosomal DNA called plastids.
XI NCERT, Page no. 128 & 129

5. In prokaryotes, ribosomal RNAs _____.
(1) as well as proteins are synthesized in cytoplasm
(2) are synthesized in the nucleolus while proteins in cytoplasm
(3) are synthesized in the cytoplasm while proteins in nucleolus
(4) as well as proteins are synthesized in nucleus
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6. The term cell envelope in bacteria includes _____.
(1) cell wall and plasma membrane
(2) slime layer, cell wall and plasma membrane
(3) slime layer and capsule
(4) glycocalyx, cell wall and plasma membrane
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7. Inclusion bodies in prokaryotic cell refers to ____.

(1) Reserve material, fimbriae and ribosomes
(2) Mesosome, reserve material and fimbriae
(3) Ribosome, reserve material, mesosome
(4) Gas vacuole, phosphate granule, glycogen granules and cyanophycean granules
XI NCERT, Page no. 129

EUKARYOTIC CELL

CELL MEMBRANE

8. Which of the following statements is NOT concerned with the fluid mosaic model of plasma membrane?
(1) Phospholipid forming a water resistant barrier
(2) Glycocalyx at inner surface
(3) Mosaic pattern of proteins
(4) More extrinsic protein at inner surface
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9. Fluidity of the cell membrane is measured _____.
(1) on the amount of cholesterol and protein in membrane
(2) on the amount of carbohydrate in membrane
(3) on the lateral movement of proteins within the overall bilayer
(4) on the flip-flop movement of protein
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10. Select an INCORRECT statement about the plasma membrane
(1) Integral proteins are partially or totally buried in the membrane.
(2) Erythrocyte membrane has approximately 52% proteins and 40% lipids
(3) Quasi fluid nature of lipids enables lateral movement of proteins within the overall bilayer.
(4) The membrane is freely permeable.
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CELL WALL

11. Find out the incorrect statement
(1) Middle lamella is mainly made up of Ca-pectate.
(2) Cell wall is formed from inner side therefore secondary wall formed before primary wall.
(3) Middle lamella glues the different neighbouring cells together.
(4) Pits are present in secondary wall.
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12. Middle lamella is the first structure formed between the newly formed daughter cells _____.
a. at the time of cytokinesis
b. and is composed of cellulose provided by ribosomes
c. which is common wall between adjacent cells
d. which gets dissolved during ripening of fruit
(1) all are correct
(2) only b is incorrect
(3) both c and d are incorrect
(4) both a and d are incorrect
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ENDOMEMBRANE SYSTEM

13. With which of the following functions is agranular endoplasmic reticulum associated?
(1) Synthesis of secretory as well as non-secretory proteins
(2) Synthesis of non-secretory proteins
(3) Synthesis of steroidal hormones

(4) Synthesis of secretory proteins
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14. Which of the following is NOT a function of ER?
(1) Synthesis of lipids (2) Associated with muscle contraction
(3) Synthesis of serum proteins (4) Acrosome formation
XI NCERT, Page no. 133

15. A number of proteins synthesized by ribosomes on the endoplasmic reticulum are modified in the _____ of the Golgi apparatus before they are released from its *trans* face.
(1) cisternae (2) vesicles
(3) maturing face (4) more than one option is correct
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16. Select incorrect statement regarding function of Golgi complex
(1) High glycosyl transferase activity (2) H^+ pumping
(3) Repairing of plasma membrane (4) Vitellogenesis
XI NCERT, Page no. 133 & 134

17. The enzyme present in lysosomes belong to the class _____ and acidic condition inside is maintained by _____
(1) oxidoreductases, pumping protons (2) hydrolases, secretion of acids
(3) hydrolases, pumping of protons (4) lyases, removal of protons
XI NCERT, Page no. 134

18. Which of the following does not describe the function/nature of lysosome?
(1) Suicidal bags (2) Residual body
(3) Autophagic vacuole (4) Cells xenobiotics
XI NCERT, Page no. 134

19. Lysosomes are membrane bound vesicular structures formed by the process of packaging in _.
(1) plastid (2) Golgi apparatus (3) mitochondria (4) peroxisome
XI NCERT, Page no. 134

20. Lysosomal enzymes act at
(1) Basic pH
(2) Acidic pH
(3) Neutral pH
(4) Acidic pH inside lysosome and basic pH in cytosol
XI NCERT, Page no. 134

21. The correct statement in relation to vacuoles is that _____.
(1) it is a triple membrane bound space found in cytoplasm containing sap
(2) it can occupy 90% of cell volume in plants
(3) its membrane allows transport of materials along the concentration gradient only
(4) concentration of ions is significantly lesser in vacuole than cytoplasm
XI NCERT, Page no. 134

22. Vesicles from ER fuse with ____.
(1) maturing face of Golgi body
(2) forming face of Golgi body
(3) primary lysosome for intracellular digestion
(4) plasma membrane to remove them out from cell

XI NCERT, Page no. 133

23. Which of the following cell organelle is a major site for the synthesis of steroidal hormones?
(1) SER (2) Golgi bodies (3) Ribosomes (4) Peroxisome
XI NCERT, Page no. 133

24. Glycosylation, general secretion and recycling of broken plasma membrane are functions specifically performed by ____.
(1) glyoxysome (2) SER (3) RER (4) Golgi complex
XI NCERT, Page no. 133 & 134

25. The endomembrane system includes all, EXCEPT _____.
(1) peroxisome (2) ER (3) Golgi complex (4) vacuole
XI NCERT, Page no. 133

26. Packing of materials, modification of proteins and glycolipid formation are important functions of _____.
(1) Golgi complex (2) ER (3) lysosome (4) PM
XI NCERT, Page no. 134

27. Which organelle divides the cytoplasm in luminal and extraluminal cytoplasm?
(1) Golgi complex (2) ER (3) Lysosome (4) Peroxisome
XI NCERT, Page no. 133

28. Polymorphic organelle is concerned with the _____.
(1) storage of reserve food materials
(2) oxidative phosphorylation
(3) storage of many types of acid hydrolases
(4) photophosphorylation
XI NCERT, Page no. 134, Lysosome is called a polymorphic organelle.

MITOCHONDRIA

29. ETS and oxidative phosphorylation enzymes are located in _____.
(1) inner mitochondrial membrane (2) peri mitochondrial space
(3) mitochondrial matrix (4) thylakoids membrane
XI NCERT, Page no. 135

30. Select an INCORRECT statement regarding mitochondria and chloroplasts
(1) Have ability to divide by binary fission (2) Have ability to synthesize ATP
(3) They are autonomous organelles (4) Have porins in outer membrane
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PLASTIDS

31. Which of the following plastid store fats?
(1) Elaioplast (2) Aleuroplast (3) Proteinoplast (4) Amyloplast
XI NCERT, Page no. 135

32. Which one of the following organelles is involved in storage of proteins?
(1) Aleuroplast (2) Ribosome (3) Oleosome (4) Chloroplast
XI NCERT, Page no. 136

33. Which of the following features is common in all types of plastids?
(1) Photosynthesis (2) Presence of chlorophyll

(3) Storage nature (4) Presence of linear DNA
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34. Select an INCORECT match
(1) Elaioplast - Oil and fats storage (2) Amyloplast - Carbohydrate storage
(3) Proteinoplast - Protein storage (4) Aleuroplast - Starch storage
XI NCERT, Page no. 135 & 136

35. Many of the organelles show coordination in their functions and are considered together as an endomembrane system. Find an odd one out w.r.t. this statement
(1) ER (2) Golgi complex (3) Vacuole (4) Plastid
XI NCERT, Page no. 135 & 136

36. Amyloplasts store _____.
(1) starch as in potato (2) protein as in maize
(3) lipid as in *Castor* (4) oil as in coconut
XI NCERT, Page no. 135

RIBOSOME

37. All are membrane bound cell organelles in a typical cell, EXCEPT _____.
(1) mitochondria (2) lysosome (3) ribosome (4) chloroplast
XI NCERT, Page no. 136

38. 80S ribosomes chemically contain _____.
(1) 60% rRNA + 40% proteins (2) 40% rRNA + 60% proteins
(3) 60% rRNA + 20% proteins (4) 20% rRNA + 60% proteins
XI NCERT, Page no. 136

39. Which is not a microtubular organelle?
(1) Centriole (2) Basal body (3) Cilia (4) Ribosome
XI NCERT, Page no. 136

CYTOSKELETON

40. Which of the following is not a microtubular organelle?
(1) Centriole (2) Cilia
(3) Basal body (4) Dalton complex
XI NCERT, Page no. 136

41. Which of the cell organelle is associated with muscle contraction?
(1) Vacuole (2) Microfilaments
(3) Golgi complex (4) Microtubules
XI NCERT, Page no. 136

42. Which of the following is not a part of cytoskeleton?
(1) Microtubule (2) Microfilament
(3) Intermediate filament (4) Microfibril
XI NCERT, Page no. 136

43. Cytoskeleton is a term referred to _____.
(1) the structures performing protein synthesis
(2) proteinaceous structures in cytoplasm
(3) the structure that performs synthesis of steroidal hormones
(4) cellulosic microfibrils

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CILIA AND FLAGELLA

44. Choose an INCORRECT match

(1) Glyoxysomes – Oxidation
(2) Axoneme of flagella – 9 + 0 structure
(3) Sphaerosome – Half unit membrane
(4) Janus green B – Mitochondria

XI NCERT, Page no. 137

45. Axonemal arrangement of microtubules in a cilium/flagellum is _____.

(1) 9 + 0 (2) 18 + 0 (3) 9 + 2 (4) 9 triplets

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CENTROSOME AND CENTRIOLE

46. How many microtubules are associated with the structure of the centriole?

(1) 9 (2) 18 (3) 27 (4) 11

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47. The wall of centriole is composed of _____.

(1) 9 microtubular doublets
(2) 9 microtubular triplets
(3) 9 microtubular singlets surrounded by a sheath
(4) 2 microtubular doublets surrounded by a sheath

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48. The central part of proximal region of centriole is called hub which is made of ____.

(1) protein (2) lipoprotein (3) phospholipid (4) oligosaccharide

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NUCLEUS

49. Select an incorrect statement regarding nucleolus

(1) No limiting membrane (2) Made by NOR
(3) Help in synthesis of r-RNA (4) Discovered by Waldeyer

XI NCERT, Page no. 138

50. Which of the following is a ribosome factory?

(1) Dalton complex (2) Lysosome (3) Nucleolus (4) Centrosome

XI NCERT, Page no. 138

51. A nuclear pore allows _____.

(1) unidirectional movement of DNA (2) RNA movement only
(3) RNA and protein movement (4) protein movement only

XI NCERT, Page no. 138

52. Disc shaped proteinaceous structure attached to centromere of a chromosome is called ____.

(1) chromocenter (2) NOR (3) chromomere (4) kinetochore

XI NCERT, Page no. 139

53. Which of the following cell structures is made by NOR?

(1) Aleuroplast (2) Nucleolus
(3) Sphaerosome (4) Rough ER

XI NCERT, Page no. 138

54. The content of nucleolus is continuous with nucleoplasm ____.
(1) through microtubules
(2) through nuclear pores
(3) due to lack of membrane
(4) due to presence of channels in membrane
XI NCERT, Page no. 138

MICROBODIES

55. Cytoplasmic organelle involved in storage and synthesis of fat in plants is ____.
(1) glyoxysome (2) sphaerosome (3) mitochondria (4) peroxisome
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56. In plants, which of the following microbody is involved in photorespiration?
(1) Peroxisome (2) Sphaerosome (3) Glyoxysome (4) Ribosome
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GENERAL

57. Match the following cell organelles with their functions

Column I	Column II
a. SER	(i) Conversion of fat into carbohydrate
b. Golgi complex	(ii) Lipid synthesis
c. Glyoxysome	(iii) Cytoplasmic streaming
d. Microfilament	(iv) Formation of primary lysosome

(1) a(ii), b(iv), c(i), d(iii)
(2) a(ii), b(iv), c(iii), d(i)
(3) a(iv), b(i), c(ii), d(iii)
(4) a(ii), b(iii), c(i), d(iv)
XI NCERT, Page no. 133 & 136

58. Which of the following cellular organelles is/are bound by a single membrane?
[Peroxisomes, lysosomes, mitochondria]
(1) Only peroxisomes but not lysosomes and mitochondria
(2) Both peroxisomes and lysosomes but not mitochondria
(3) All of the three organelles
(4) None of the three organelles
XI NCERT, Page no. 133

LEVEL-II (HOME WORK)

CELL THEORY
OVERVIEW OF CELL
PROKARYOTIC CELL

1. Match Column – I with Column – II and select the correct option from the codes given below:

	Column – I		Column – II
(A)	Leeuwenhoek	(i)	First saw and described a living cell
(B)	Robert Brown	(ii)	Presence of cell wall is unique to plant cells
(C)	Schleiden	(iii)	Discovered the nucleus
(D)	Schwann	(iv)	All plants are composed of different kind of cells

(1) A – (i), B – (iii), C – (iv), D – (ii)
(2) A – (i), B – (iii), C – (ii), D – (iv)
(3) A – (iii), B – (i), C – (iv), D – (ii)
(4) A – (i), B – (iv), C – (ii), D – (iii)
XI NCERT, Page no. 125 & 126

2. Arrange the following steps in a correct sequence as per Gram's staining technique :
Treatment with 0.5% iodine solution (1), washing with water (2), treatment with absolute

alcohol / acetone (3), starting with a weak alkaline solution of crystal violet (4).

(1) 4 → 1 → 2 → 3 (2) 3 → 2 → 1 → 4

(3) 3 → 1 → 2 → 3 (4) 4 → 2 → 3 → 1

Gram staining 4 steps :

(1) Crystal violet treatment

(2) Gram's iodine treatment

(3) Alcohol/acetone treatment

(4) Saffranine/basic fuchsine treatment

3. Which of the given statements are correct?

(i) *Bacillus subtilis* is a Gram (+) bacteria.

(ii) *Escherichia coli* is a Gram (–) bacteria.

(iii) Washing of the Gram's stain in Gram (–) bacteria is due to the high lipid content of the cell wall, which gets dissolved in organic solvents like acetone.

(1) (i) and (ii) (2) (ii) and (iii) (3) (i) and (iii) (4) (i), (ii) and (iii)

XI NCERT, Page no. 128

4. 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 eggs

(iii) Human RBCs (iv) Bacteria

(1) (i) → (iv) → (iii) → (ii) (2) (i) → (ii) → (iii) → (iv)

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

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5. Mesosomes are the infoldings of cell membrane, which _____.

(i) are present in both prokaryotic and eukaryotic cells

(ii) help in cell wall formation, DNA replication and respiration

(iii) increase the surface area of the plasma membrane

(1) (i) and (ii) (2) (ii) and (iii) (3) (i) and (iii) (4) (i), (ii) and (iii)

XI NCERT, Page no. 128

6. Correct sequence of layers of bacterial cell envelope is _____.

(1) cell wall →glycocalyx→ cell membrane

(2) cell membrane →glycocalyx→ cell wall

(3) glycocalyx→ cell wall → cell membrane

(4) glycocalyx→ cell membrane → cell wall

XI NCERT, Page no. 128

7. _____ are self replicating, extra chromosomal segments of double stranded circular and naked DNA, present in a bacterial cell.

(1) Plasmids (2) Nucleoid (3) Mesosomes (4) Bacteriophages

XI NCERT, Page no. 128

8. If you removed the flagella 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

XI NCERT, Page no. 129

EUKARYOTIC CELL

CELL MEMBRANE

9. Choose the incorrect statement regarding cell membrane
   (1) Generally, smaller molecules pass easily and readily than large molecules.
   (2) Water soluble substance pass through it less readily than lipid soluble substances.
   (3) Membranes are selectively permeable.
   (4) None of these

XI NCERT, Page no. 131 and 132

10. 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 RBCs.
   (3) Plasma membrane has a bilayer of lipids with associated proteins and carbohydrates.
   (4) Head of the lipid is hydrophobic.

XI NCERT, Page no. 131 and 132

11. Which of the following statements is incorrect about the cell membrane?
   (1) It is present in both plant and animal cells.
   (2) Lipids are present in it as bilayer.
   (3) Proteins may be peripheral or integral in it.
   (4) Carbohydrates are never found in it.

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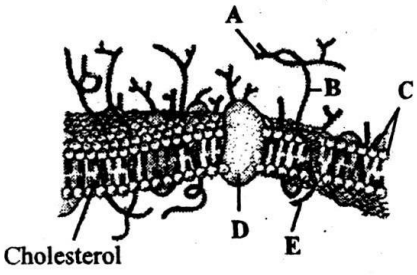
12. Identify the components labelled A, B, C, D and E in the given figure of cell membrane from the list (i) to (vii) given along with and select the correct option



Components:
(i) Sugar (ii) Protein
(iii) Lipid bilayer (iv) Integral protein
(v) Cytoplasm (vi) Cell wall
(vii) External protein
The correct matching of components is _____.
(1) A – (i), B – (ii), C – (iii), D – (iv), E – (v)
(2) A – (ii), B – (i), C – (iii), D – (iv), E – (v)
(3) A – (i), B – (ii), C – (iii), D – (iv), E – (vi)
(4) A – (i), B – (ii), C – (iii), D – (vii), E – (v)

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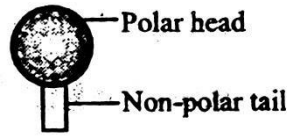
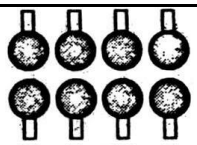
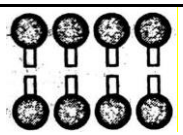
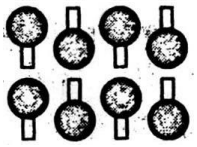
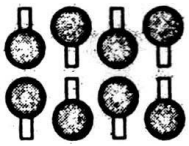
13. The lipid molecules present in plasma membranes have polar heads and nonpolar tails (as shown in figure). Which option represents the correct arrangement of lipids in lipid bilayer?



(1) 

(2) 

(3) 

(4) 

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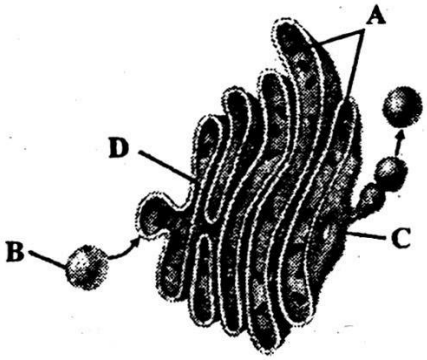
CELL WALL
ENDOMEMBRANE SYSTEM

14. Lysosomes are _____ vesicular structures formed by the process of packaging in the _____ .
(1) membrane bound, Golgi apparatus
(2) non-membrane bound, Golgi apparatus
(3) membrane bound, ER
(4) non-membrane bound, ER

XI NCERT, Page no. 134

15. Select the option with correct labelling of given structure of Golgi apparatus



	A	B	C	D
(1)	Cisternae	Vesicle	*trans* face	*cis* face
(2)	Cisternae	Vesicle	*cis* face	*trans* face
(3)	Vesicle	Cisternae	*cis* face	*trans* face
(4)	Tubules	Vesicle	*trans* face	*cis* face

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16. A cell, which is very active in the synthesis and secretion of proteins as well as synthesis of lipids, 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

XI NCERT, Page no. 133

17. Read the given statements regarding a cell organelle
(i) It contains water, sap, excretory products and other unwanted materials.
(ii) It is bounded by a single membrane called tonoplast.
(iii) In plant cells, it can occupy upto 90% of cellular volume.
(iv) Its contents form cell sap.
(v) It maintains turgor pressure.
The above features are attributed to _____.
(1) lysosome (2) vacuole (3) peroxisome (4) mitochondria

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18. Which of the following represents the features of lysosomes?
(1) A lower pH than the cytoplasm (2) Reduced hydrolase activity
(3) Double membrane envelope (4) All of these
XI NCERT, Page no. 134

19. How does a cell get rid of defective or malfunctioning organelles?
(1) They are engulfed by plastids and stored until export from the cell is possible.
(2) Defective parts accumulate until the cell itself dies.
(3) They are exported by exocytosis.
(4) Lysosomes assist in the removal of defective organelles by digesting them.
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MITOCHONDRIA

20. Study the following statements regarding mitochondria and select the correct ones
(i) These are the sites of aerobic respiration.
(ii) Matrix contains a single circular ds DNA molecule, a few RNA molecules, 70S ribosomes.
(iii) Mitochondria divide by fission.
(iv) Mitochondria are fully-autonomous.
(1) (i) and (ii) (2) (iii) and (iv)
(3) (i), (ii) and (iii) (4) (i), (ii), (iii) and (iv)
XI NCERT, Page no. 134 and 135

21. Which of the following observations most strongly support the view that mitochondria contain electron transport enzymes aggregated into compact association?
(1) Mitochondria have a highly folded inner wall.
(2) Disruption of mitochondria yields membrane fragments, which are able to synthesis ATP.
(3) A contractile protein capable of utilizing ATP has been obtained from mitochondria.
(4) Mitochondria in animal embryos have a tendency to concentrate in cells, which are to become locomotory structures.
XI NCERT, Page no. 134 and 135

22. Which of the following statements is incorrect?
(1) Mitochondria, unless specifically stained, are not easily visible under the microscope.
(2) Physiological activity of cells determines the number of mitochondria per cell.
(3) Mitochondrion, a power house of cell has DNA, RNA, ribosomes and enzymes, so it can survive outside the cell.
(4) Mitochondria divide by fission.
XI NCERT, Page no. 134 and 135

PLASTID

23. On the basis of which one of the following features do plastids differ from mitochondria?
(1) Presence of two layers of membrane (2) Presence of ribosome
(3) Presence of chlorophyll (4) Presence of DNA
XI NCERT, Page no. 135 and 136

24. Bright colour of petals, is due to presence of ____.
(1) chloroplast (2) anthocyanin (3) chromoplast (4) leucoplast
XI NCERT, Page no. 135 and 136

25. Read the given statements
(i) Flat membranous sacs in stroma of chloroplasts
(ii) Infoldings in mitochondria

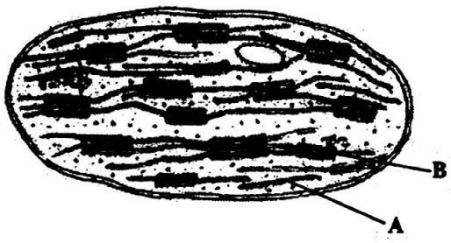
(iii) Disc shaped sacs in Golgi apparatus

Select the correct option as per the numbers given above

	Cristae	Cisternae	Thylakoids
(1)	(iii)	(i)	(ii)
(2)	(i)	(ii)	(iii)
(3)	(ii)	(iii)	(i)
(4)	(iii)	(ii)	(i)

XI NCERT, Page no. 135 and 136

26. Identify A and B in the given figure and select the correct option



	A	B
(1)	Grana thylakoid	Stroma thylakoid
(2)	Stroma thylakoid	Grana thylakoid
(3)	Granum	Stroma
(4)	Stroma	Granum

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27. Match Column – I with Column – II and select the correct option from the codes given below :

	Column – I		Column – II
(A)	Chloroplasts	(i)	Colourless plastids
(B)	Chromoplasts	(ii)	Yellow, orange or red coloured plastids
(C)	Leucoplasts	(iii)	Green plastids

(1) A – (iii), B – (i), C – (ii) (2) A – (iii), B – (ii), C – (i)

(3) A – (i), B – (iii), C – (ii) (4) A – (i), B – (ii), C – (iii)

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28. Amyloplasts, elaioplasts and aleuroplasts belong to _____ category of plastids

(1) chloroplasts (2) chromoplasts (3) leucoplasts (4) plasmids

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29. All plastids have essentially the same structure because _____.

(1) they have to perform the same function

(2) they are localized in the aerial parts of plants

(3) one type of plastids can differentiate into another type of plastids depending upon the cell requirements

(4) all plastids have to store starch, lipids and proteins

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RIBOSOMES

30. Polyribosomes are aggregation of _____.

(1) ribosomes and rRNA

(2) peroxisomes

(3) several ribosomes held together by a string of *m*RNA

(4) rRNA

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31. _____ are granular structures first observed under electron microscope as dense particles

by _____ (1953).
(1) Ribosomes, George Palade
(2) Ribosomes, Perner
(3) Lysosomes, de Duve
(4) Peroxisomes, de Duve

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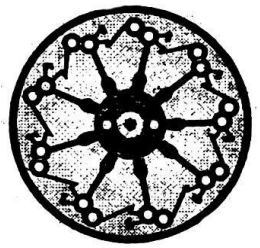
CYTOSKELETON
CILIA AND FLAGELLA

32. Which of the following is correct for the given structure?



(1) These are small structures which work like oars.
(2) It is covered with plasma membrane.
(3) Its core is called axoneme.
(4) All of these

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33. The core of a cilium or flagellum composed of microtubules and their associated proteins is called _____.
(1) blepharoplast (2) axoneme (3) microfilament (4) tubulin

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34. Which of the following is correct regarding the structure of a section of cilia / flagella?

	Peripheral microtubules (doublets)	**Central Microtubules**	**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

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CENTROSOME AND CENTRIOLE

35. Centrioles arise from ____.
(1) pre-existing centrioles
(2) *de novo*
(3) nuclear envelope
(4) sphaerosome

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36. Which of the following statements is incorrect for centrioles?
(1) Both the centrioles in a centrosome lie perpendicular to each other.
(2) Central proteinaceous hub is missing in a centriole.
(3) Each centriole has an organization like that of a cartwheel.
(4) Centrosome usually contains 2 cylindrical centrioles.

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37. Which of the following options is correct about structures visible in the cross section of a centriole?

	Peripheral	**Central Microtubules**	**Hub**	**Radial**	**Central**

	microtubules (triplets)	(singlets)		spokes	sheath
(1)	9	2	1	9	9
(2)	9	2	9	9	9
(3)	9	2	1	2	2
(4)	9	0	1	9	

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NUCLEUS

38. Read the given statements
(i) Centromere is present in the middle of the chromosome and forms two equal arms.
(ii) Chromosomes have a terminal centromere.
(iii) Centromere lies close to the end of the chromosome forming one extremely short and one very long arm.
(iv) Centromere lies slightly away from the middle of the chromosome resulting into one shorter arm and one longer arm.
Select the correct option as per the codes given above

	Metacentric	Submetacentric	Acrocentric	Telocentric
(1)	(i)	(iv)	(iii)	(ii)
(2)	(i)	(ii)	(iii)	(iv)
(3)	(iv)	(i)	(iii)	(ii)
(4)	(iv)	(ii)	(iii)	(i)

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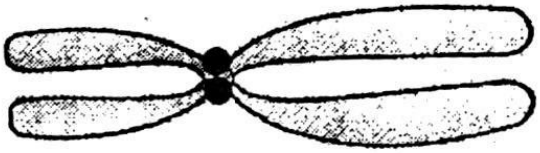
39. _____ is directly connected to the outer membrane of nucleus.
(1) Mitochondria (2) Golgi body (3) ER (4) Chloroplast
XI NCERT, Page no. 138

40. Which of the following is correct regarding the given figure?



	No. of centromere/s	No. of kinetochore/s	No. of arms
(1)	2	1	4
(2)	1	2	4
(3)	2	2	4
(4)	1	2	2

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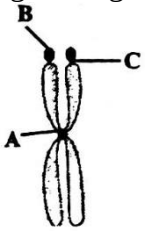
41. What does A, B and C represent in the given figure of a chromosome?



	A	B	C
(1)	Centriole	Satellite	Primary constriction
(2)	Centriole	Satellite	Secondary constriction
(3)	Centromere	Satellite	Secondary constriction
(4)	Centromere	Satellite	Primary constriction

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42. According to the most recent studies, each chromosome consists of _____.
(1) single double helical DNA which is highly coiled and folded.
(2) variable number of DNA helices, depending upon the length of chromosome.
(3) many small DNA helices, which are joined by peptide linkages.
(4) small DNA helices, wrapped around each other like a rope.

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MICROBODIES

43. Which of the following statements regarding spherosomes is not correct?
(1) Abundant in the endosperm cells of oil seeds
(2) Bounded by a single membrane
(3) Take part in synthesis and storage of lipids
(4) Take part in photorespiration in plants

XI NCERT, Page no. 140

44. Which one of these is not correct regarding peroxisomes?
(1) Single membrane bound organelles.
(2) Perform photorespiration in C_3 plants.
(3) Take part in synthesis and storage of lipids.
(4) Protect a cell from the toxic effects of H_2O_2.

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45. _____ are the microbodies, which take part in glyoxylate pathway, bounded by a single membrane and are usually present in germinating fatty seeds
(1) Glyoxysomes (2) Peroxisomes (3) Sphaerosomes (4) Lysosomes

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GENERAL

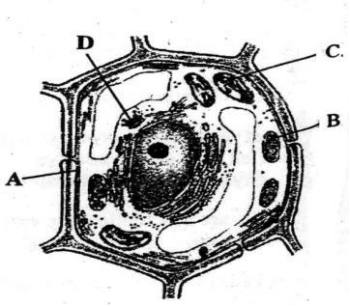
46. Match Column – I with Column – II and select the correct option from the codes given below

	Column – I		Column – II
(A)	Mitochondria	(i)	Without membrane
(B)	Lysosomes	(ii)	Single membrane
(C)	Ribosomes	(iii)	Double membrane

	A	B	C
(1)	(i)	(ii)	(iii)
(2)	(iii)	(i)	(ii)
(3)	(iii)	(ii)	(i)
(4)	(ii)	(iii)	(i)

XI NCERT, Page no. 134, 135 & 136

47. Identify the parts labeled as A, B, C and D in the given ultra-structure of a plant cell and select the correct option



	A	B	C	D
(1)	Plasma membrane	Chloroplast	Mitochondrion	Golgi complex
(2)	Plasma membrane	Mitochondrion	Chloroplast	RER
(3)	Cell wall	Mitochondrion	Chloroplast	RER
(4)	Cell wall	Chloroplast	Mitochondrion	Golgi complex

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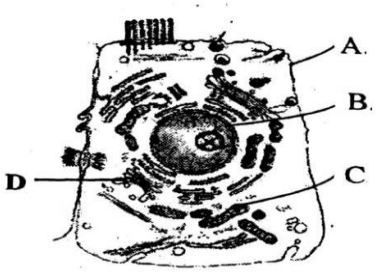
48. Match Column – I with Column – II and select the correct option from the codes given below

	Column – I		Column – II
(A)	Dictyosomes	(i)	Storage
(B)	Mitochondria	(ii)	Photosynthesis
(C)	Vacuoles	(iii)	Transport
(D)	Grana	(iv)	Secretion
		(v)	Respiration

	A	B	C	D
(1)	(iv)	(v)	(i)	(ii)
(2)	(i)	(ii)	(iv)	(iii)
(3)	(iv)	(i)	(ii)	(iii)
(4)	(i)	(ii)	(iii)	(iv)

XI NCERT, Page no. 134, 135 and 136

49. Given is the ultrastructure of an animal cell. Identify the parts marked as A, B, C and D



	A	B	C	D
(1)	Plasma membrane	Nucleus	Mitochondrion	Golgi complex
(2)	Plasma membrane	Vacuole	Mitochondrion	Golgi complex
(3)	Cell wall	Nucleus	Mitochondrion	RER
(4)	Cell wall	Vacuole	Chloroplast	Golgi complex

XI NCERT, Page no. 130

50. Match Column – I with Column – II and select the correct option from the codes given below:

	Column – I		Column – II
(A)	Nucleolus	(i)	Lipid storage
(B)	Sphaerosomes	(ii)	Glycolate metabolism
(C)	Peroxisomes	(iii)	Transport of macromolecules
(D)	Plasmodesmata	(iv)	RNA synthesis

	A	B	C	D
(1)	(iv)	(i)	(iii)	(ii)
(2)	(i)	(ii)	(iv)	(iii)
(3)	(iv)	(i)	(ii)	(iii)
(4)	(i)	(ii)	(iii)	(iv)

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51. Match the cell organelles given in Column – I with cellular processes in Column – II and select the correct option from the codes given below

	Column – I		Column – II
(A)	Lysosomes	(i)	Protein synthesis
(B)	Ribosomes	(ii)	Hydrolytic activity
(C)	Smooth endoplasmic reticulum	(iii)	Steroid synthesis
(D)	Centriole	(iv)	Formation of spindle

	A	B	C	D
(1)	(ii)	(i)	(iii)	(iv)
(2)	(i)	(iii)	(iv)	(ii)
(3)	(i)	(iv)	(iii)	(ii)
(4)	(iv)	(iii)	(i)	(ii)

XI NCERT, Page no. 133, 134 137 and 138

52. Match Column – I with Column – II and select the correct option from the codes given below:

	Column – I		Column – II
(A)	RER	(i)	Intracellular and extracellular digestion
(B)	SER	(ii)	Lipid synthesis
(C)	Golgi complex	(iii)	Protein synthesis and secretion
(D)	Lysosomes	(iv)	Moves materials out of the cells

(1) A – (iii), B – (ii), C – (iv), D – (i)
(2) A – (ii), B – (iii), C – (iv), D – (i)
(3) A – (i), B – (iii), C – (ii), D – (iv)
(4) A – (iv), B – (ii), C – (iii), D – (i)

XI NCERT, Page no. 133 and 134

53. _____ is the single membrane bound organelle.
(1) Sphaerosome (2) Lysosome (3) Glyoxysome (4) All of these

XI NCERT, Page no. 134

54. Non-membrane bound cell organelle is _____.
(1) ribosomes
(2) centrioles
(3) nucleolus
(4) all the given options

XI NCERT, Page no. 136, 137 and 138

55. 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

XI NCERT, Page no. 135 & 136

PREVIOUS YEARS QUESTIONS (HOME WORK)

1. The osmotic expansion of a cell kept in water is chiefly regulated by __. **[AIPMT 2014]**
   (1) plastids (2) ribosomes
   (3) mitochondria (4) vacuoles
XI NCERT, Page no. 134

2. Match the following and select the **correct** answer **[AIPMT 2014]**
   (a) Centriole (i) Infloldings in mitochondria
   (b) Chlorophyll (ii) Thylakoids
   (c) Cristate (iii) Nucleic acids
   (d) Ribozymes (iv) Basal body cilia or flagella

	(a)	(b)	(c)	(d)
(1)	(i)	(iii)	(ii)	(iv)
(2)	(iv)	(iii)	(i)	(ii)
(3)	(iv)	(ii)	(i)	(iii)
(4)	(i)	(ii)	(iv)	(iii)

XI NCERT, Page no. 135, 136, 137 and 138

3. Which structures perform the function of mitochondria in bacteria? **[AIPMT 2014]**
   (1) Cell wall (2) Mesosomes
   (3) Nucleoid (4) Ribosomes
XI NCERT, Page no. 128

4. The motile bacteria are able to move by __. **[AIPMT 2014]**
   (1) cilia (2) pili (3) fimbriae (4) flagella
XI NCERT, Page no. 129

5. The Golgi complex plays a major role ____. **[NEET 2013]**
   (1) in post translational modification of proteins and glycosidation of lipids
   (2) in trapping the light and transforming it into chemical energy
   (3) in digesting proteins and carbohydrates
   (4) as energy transferring organelles
XI NCERT, Page no. 133 & 134

6. A major site for synthesis of lipids is ____. **[NEET 2013]**
   (1) nucleoplasm (2) RER (3) SER (4) symplast
XI NCERT, Page no. 133

7. Which one of the following organelle in the figure correctly matches with its function? **[NEET 2013]**

   (1) Rough endoplasmic reticulum: Protein synthesis
   (2) Rough endoplasmic reticulum: Formation of glycoproteins

(3) Golgi apparatus: Protein synthesis
(4) Golgi apparatus: Formation of glycolipids

XI NCERT, Page no. 133

8. Ribosomal RNA is actively synthesized in __. **[AIPMT 2012]**
(1) ribosomes (2) lysosomes (3) nucleolus (4) nucleoplasm

XI NCERT, Page no. 138

9. Which one of the following structures is an organelle within an organelle? **[AIPMT 2012]**
(1) Ribosome (2) Peroxisome (3) ER (4) Mesosome

XI NCERT, Page no. 136

10. Which one of the following cellular parts is correctly described? **[AIPMT 2012]**
(1) Thylakoids - Flattened membranous sacs forming the grana of chloroplasts
(2) Centrioles - Sites for active RNA synthesis
(3) Ribosomes - Those on chloroplasts are larger while those in the cytoplasm are smaller (70S)
(4) Lysosomes - Optimally active at a pH of about 8.5

XI NCERT, Page no. 136

11. Which one of the following organisms is not an example of eukaryotic cells? **[AIPMT 2011]**
(1) *Escherichia coli* (2) *Euglena viridis*
(3) *Amoeba proteus* (4) *Paramecium caudatum*

Bacteria (monerans) are prokaryotic

12. In eubacteria, a cellular component that resembles eukaryotic cells is ___. **[AIPMT 2011]**
(1) Nucleus (2) Ribosomes
(3) Cell wall (4) Plasma membrane

XI NCERT, Page no. 131

13. Comparing small and large cells, which statement is correct? **[DUMET 2011]**
(1) Small cells have a small surface area per volume ratio.
(2) Exchange rate of nutrients is fast with large cells.
(3) Small cells have a large surface area per volume.ratio.
(4) Exchange rate of nutrients is slow with small cells.

Fact based

14. Phagocytosis and pinocytosis are collectively termed as _____. **[DUMET 2011]**
(1) endocytosis (2) suspension feeding
(3) omnivores (4) mucous trap

ENDOCYTOSIS = PHAGOCYTOSIS +PINOCYIOSIS

15. Vital stains are employed to study _____. **[DUMET 2011]**
(1) living cells (2) frozen tissues
(3) fresh tissues (4) preserved tissues

XI NCERT, Page no. 138

16. Middle lamella is present _____. **[UP CPMT 2011]**
(1) inside the secondary wall (2) inside the primary wall
(3) outside the primary wall (4) in between secondary and tertiary walls
XI NCERT, Page no. 132

17. Fluid mosaic model was given by _____. **[OJEE 2011]**
(1) Beadle and Tatum (2) Jacob and Monod
(3) Singer and Nicolson (4) Watson and Crick
XI NCERT, Page no. 132

18. Plasma membrane is made up of _____. **[OJEE 2011]**
(1) lipid, protein and water (2) lipid, protein and manganese
(3) lipid and carbohydrate (4) lipid, protein and carbohydrates
XI NCERT, Page no. 131

19. Middle lamella is composed of _____. **[IIT JEE 2011]**
(1) carbohydrate (2) calcium pectate
(3) protein (4) peptidoglycan
XI NCERT, Page no. 132

20. What is a genophore? **[IIT JEE 2011]**
(1) DNA in prokaryotes (2) DNA and RNA in prokaryotes
(3) DNA and protein in prokaryotes (4) RNA in prokaryotes
Nucleic acids (DNA, RNA) in prokaryotes is known as gemophore

21. Structural lipids of cell membrane are _____. **[WB JEE 2011]**
(1) simple lipid (2) chromolipids
(3) steroid (4) phospholipids
XI NCERT, Page no. 131

22. Glycocalyx is associated with _____. **[J&KCET 2011]**
(1) nucleolus (2) plasma membrane
(3) nucleus (4) nucleosome
XI NCERT, Page no. 132

23. Which one of the following structures between two adjacent cells is an effective transport pathway? **[CBSE AIPMT 2011]**
(1) Plasmodesmata (2) Plastoquinones
(3) Endoplasmic reticulum (4) Plasmalemma
XI NCERT, Page no. 132

24. The main arena of various types of activities of a cell is _____. **[CBSE AIPMT 2011]**
(1) plasma membrane (2) mitochondrion
(3) cytoplasm (4) nucleus
XI NCERT, Page no. 126

25. Consider the following statements and choose the correct one **[Kerala CEE 2011]**
(1) Plant cells have centrioles which are absent in almost all animal cells.
(2) Ribosomes are the site of protein synthesis.
(3) The middle lamella is a layer mainly of calcium carbonate which holds the different neighboring cells together.
(4) All plastids bear chlorophyll.
(5) None of the above
XI NCERT, Page no. 136

26. Cell theory is not applicable for _____. **[WB JEE 2011]**
(1) bacteria (2) fungus (3) algae (4) virus
XI NCERT, Page no. 126

27. Important site for formation of glycoproteins and glycolipids is _____. **[CBSE AIPMT 2011]**
(1) Golgi apparatus (2) plastid (3) lysosome (4) vacuole

28. The rough endoplasmic reticulum (RER) in the cells are because of the presence of _____. **[DUMET 2011]**
(1) mitochondria associated with ER (2) ribosomes on the surface of ER
(3) volutin granules on the surface of ER (4) sulphur granules on the surface of ER
XI NCERT, Page no. 133

29. Elaioplasts store _____. **[DUMET 2011]**
(1) starch (2) proteins
(3) fats (4) essential amino acids
XI NCERT, Page no. 135

30. The Golgi apparatus _____. **[DUMET 2011]**
(1) is found only in animals (2) is found in prokaryotes
(3) is a site of rapid ATP production (4) modifies and packages proteins
XI NCERT, Page no. 134

31. The difference between rough endoplasmic reticulum and smooth endoplasmic reticulum is that rough endoplasmic reticulum _____. **[UP CPMT 2011]**
(1) does not contain ribosomes (2) contains ribosomes
(3) does not transport proteins (4) transports proteins
XI NCERT, Page no. 133

32. Structural element of chromatin is _____. **[WB JEE 2011]**
(1) histone (2) acid protein and DNA
(3) nuclear matrix (4) nucleosomes
XI NCERT, Page no. 138

33. Cell organelle without a membrane is _____. **[J&K CET 2011]**
(1) mitochondria (2) liposomes (3) ribosome (4) microsome
XI NCERT, Page no. 136

34. The types of ribosome found in prokaryote is _____. **[KCET 2011]**
(1) 100S (2) 80S (3) 60S (4) 70S
XI NCERT, Page no. 136

35. Consider the following statements and choose the correct options **[Kerala CEE 2011]**
I. The endomembrane system includes plasma membrane, 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.
(1) II, III and IV are correct (2) I is correct
(3) II is correct (4) III is correct
(5) IV is correct
XI NCERT, Page no. 133, 134, 135 and 136

36. Which one of the following has its own DNA? **[CBSE AIPMT 2010]**
(1) Mitochondria (2) Dictyosome
(3) Lysosome (4) Peroxisome
XI NCERT, Page no. 134 & 135

37. The plasma membrane consists mainly of _____. **[CBSE AIPMT 2010]**
(1) phospholipids embedded in a protein bilayer
(2) proteins embedded in a phospholipid bilayer
(3) proteins embedded in a polymer of glucose molecules
(4) proteins embedded in a carbohydrate bilayer
XI NCERT, Page no. 131

38. Carrier ions like Na^+ facilitate the absorption of substances like _____. **[CBSE AIPMT 2010]**
(1) amino acids and glucose (2) glucose and fatty acids
(3) fatty acids and glycerol (4) fructose and some amino acids
XI NCERT, Page no. 132

39. Ribosomes are found in _____. **[OJEE 2010]**
(1) cytoplasm and nucleus
(2) Golgi complex and nucleus
(3) mitochondria and bacterial cell
(4) endoplasmic reticulum and Golgi complex
XI NCERT, Page no. 129 and 136

40. Chemical constituent of cystolith in plants is _____. **[OJEE 2010]**
(1) calcium carbonate (2) calcium oxalate
(3) calcium nitrate (4) calcium phosphate
Cystoliths are deposits of calcium carbonate inside enlarged epidermal cells

41. What is mitoplast? **[WB JEE 2010]**
(1) Membraneless mitochondria (2) Another name of mitochondria
(3) Mitochondria without outer membrane (4) Mitochondria without inner membrane

Mitoplast is mitochondrial without outer membrane

42. Mitochondria are semi-autonomous as they possess _____. **[WB JEE 2010]**
(1) DNA (2) DNA and RNA
(3) DNA, RNA and ribosomes (4) protein
XI NCERT, Page no. 134 and 135

43. Thylakoids occur inside _____. **[WB EE 2010]**
(1) mitochondria (2) chloroplast
(3) Golgi apparatus (4) endoplasmic reticulum
XI NCERT, Page no. 136

44. Plasmodesmata are _____. **[CBSE AIPMT 2009]**
(1) lignified cemented layers between cells
(2) locomotory structures
(3) membranes connecting the nucleus with plasmalemma
(4) connections between adjacent cells
XI NCERT, Page no. 132

45. Membrane that covers the vacuole in a plant cell is called _____. **[UP CPMT 2009]**
(1) tonoplast (2) tonoplasm
(3) jacket (4) cell membrane
XI NCERT, Page no. 134

46. Flagella of prokaryotic and eukaryotic cells differ in _____. **[JCECE 2009]**
(1) type of movement and placement in cell
(2) location in cell and mode of functioning
(3) micro-tubular organisation and type of movement
(4) micro-tubular organisation and function
XI NCERT, Page no. 137

47. Cytoskeleton is made up of _____. **[CBSE AIPMT 2009]**
(1) calcium carbonate granules (2) callose deposits
(3) cellulosic microfibrils (4) proteinaceous filaments
XI NCERT, Page no. 136

48. When a molecule moves across a membrane independent of other molecules, the process is called _____. **[AFMC 2009]**
(1) uniport (2) symport
(3) antiport (4) facilitated diffusion
XI NCERT, Page no. 132 and 178

49. The inward movement of ions into the cells is ____ and the outward movement is _____.
(1) influx, efflux (2) efflux, influx **[AFMC 2009]**
(3) absorption, adsorption (4) adsorption, absorption
XI NCERT, Page no. 132 and 200

50. Which of the following four cell structures is correctly matched with the accompanying description? **[AIIMS 2009]**
(1) Plasma membrane – Outer layer of cellulose or chitin, or absent
(2) Mitochondira – Bacteria like elements with inner membrane forming sacs containing chlorophyll, found in plant cell and algae.
(3) Chloroplasts – Bacteria like elements with inner membrane highly folded
(4) Golgi apparatus – Stacks of flattened vesicles

XI NCERT, Page no. 133 and 134

51. Nuclear membrane is continuous with _____. **[UP CPMT 2009]**
(1) rough endoplasmic reticulum (2) smooth endoplasmic reticulum
(3) cell membrane (4) Golgi bodies
XI NCERT, Page no. 133

52. Quantasomes are present in _____. **[BHU 2009]**
(1) chloroplast (2) mitochondria
(3) Golgi body (4) lysosome
XI NCERT, Page no. 136

53. The thickness of unit membrane is _____. **[BHU 2009]**
(1) 20Å (2) 35Å (3) 55Å (4) 75Å
Fact based

54. Which of the following cell organelles stores hydrolytic enzymes? **[BHU 2009]**
(1) Centriole (2) Lysosome (3) Chromoplast (4) Chloroplast
XI NCERT, Page no. 134

55. Which of the following is responsible for the origin of lysosome? **[BHU 2009]**
(1) Chloroplast (2) Mitochondria (3) Golgi body (4) Ribosome
XI NCERT, Page no. 134

56. Which of the following does not contain DNA? **[BHU 2009]**
(1) Mitochondria (2) Chloroplast (3) Peroxisome (4) Nucleus
XI NCERT, Page no. 134, 135, 136 and 138

57. F_1 particles are present in _____. **[AMU 2009]**
(1) chloroplast (2) mitochondria (3) ribosome (4) rough ER
XI NCERT, Page no. 135

58. Prokaryotic ribosome has sedimentation coefficient of _____. **[AMU 2009]**
(1) 80S (2) 70S (3) 40S (4) 60S
XI NCERT, Page no. 136

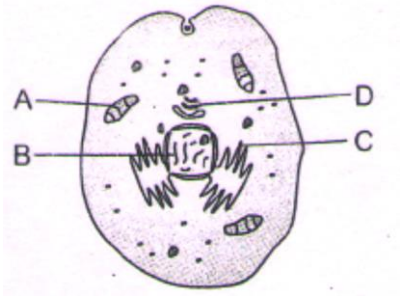
59. Which is not true about spherosomes? **[AMU 2009]**
(1) Arise from ER (2) Related to fat
(3) Single membrane bound structure (4) Involved in photorespiration
XI NCERT, Page no. 140

60. Red colour of tomato is due to _____. **[AMU 2009]**
(1) P-carotene (2) anthocyanin (3) lycopene (4) erythrocyanin
XI NCERT, Page no. 135

61. _____ is a form of active transport across a biological membrane in which a transporter protein couples the movement of ions down its electrochemical gradient to the Uphill movement of another molecular or now against the concentrated gradient. **[EAMCET 2009]**
(1) Primary active transport (2) Secondary active transport
(3) Diffusion (4) Passive transport
XI NCERT, Page no. 132

62. The chemical substances found most abundantly in the middle lamella are released into the phragmoplast by _____. **[EAMCET 2009]**
(1) endoplasmic reticulum (2) Golgi complex
(3) spindle fragments (4) interzonal fibres
XI NCERT, Page no. 133 & 134

63. The RER in the cell synthesized protein which would be later used in building the plasma membrane. But it is observed hat the protein in the membrane is slightly different from the protein made in the RER. The protein was probably modified in another cell organelle. Identify that organelle in the given diagram **[Manipal 2009]**



(1) D (2) A (3) B (4) C
XI NCERT, Page no. 133

64. During endocytosis, the cell _____. **[Manipal 2009]**
(1) divides its cytoplasm during mitosis
(2) digests itself
(3) engulfs and internalises materials using its membrane
(4) enables the extracellular digestion of large molecules
ENDOCYTOSIS is an engulfing process

65. Analyse the following pairs and identify the correct options given **[Kerala GEE 2009]**
I. Chromoplasts — Contain pigments other than chlorophyll
II. Leucoplasts — Devoid of any pigments
III. Amyloplasts— Store proteins
IV. Aleuroplasts— Store oils and fats
V. Elaioplasts— Store carbohydrates
(1) II and III are correct (2) III and IV are correct
(3) IV and V are correct (4) I and II are correct
(5) I, II and III are correct
XI NCERT, Page no. 135 & 136

66. A cell organelle that is exceptionally rich in hydrolytic enzymes is _____. **[Haryana PMT 2009]**
(1) ribosome (2) endoplasmic reticulum
(3) lysosome (4) mitochondria
XI NCERT, Page no. 134

67. Long flattened, usually unbranched units arranged in parallel stacks in endoplasmic reticulum are called _____. **[J&K CET 2009]**
(1) cisternae (2) cristae (3) vesicles (4) tubules
XI NCERT, Page no. 138

68. Keeping in view the 'fluid mosaic model' for the structure of cell membrane, which one of the following statement is correct with respect to the movement of lipids and proteins from one lipid monolayer to the other (described as flip-flop movement)? **[CBSE AIPMT 2008]**

(1) Both lipids and proteins can flip-flop
(2) While lipids can rarely flip-flop, proteins cannot
(3) While proteins can flip-flop, lipids cannot
(4) Neither lipids nor proteins can flip-flop
XI NCERT, Page no. 131 and 132

69. A conspicuous rounded body present in nucleoplasm and attached to a particular chromosome at a definite place is _____. **[Punjab PMET 2008]**
(1) plasmid (2) karyolymph
(3) nucleolus (4) nuclear reticulum
XI NCERT, Page no. 138

70. Nucleolus is _____. **[Punjab PMET 2008]**
(1) rounded structure found in cytoplasm near nucleus
(2) rounded structure inside nucleus and having rRNA
(3) rod-shaped structure in cytoplasm near the nucleus
(4) none of the above
XI NCERT, Page no. 138

71. Robert Hooke used the term cell in the year _____. **[Manipal 2008]**
(1) 1650 (2) 1665 (3) 1865 (4) I960
Fact based

72. Which of the following are properties of reserved cells? **[Guj CET 2008]**
(1) They are differentiated and they have capacity of cell division
(2) They are undifferentiated and they do not have capacity of cell division
(3) They are differentiated and they do not have capacity of cell division
(4) They are undifferentiated and they have capacity of cell division
Fact based

73. Cell theory was proposed by _____. **[Haryana PMT 2008]**
(1) Virchow (2) Schleiden and Schwann
(3) Robert Hooke (4) Barbara McClintock
XI NCERT, Page no. 126

74. The mineral present in cell wall is _____. **[Haryana PMT 2008]**
(1) Na (2) Ca (3) K (4) Mn
XI NCERT, Page no. 132

75. Stain used by Feulgen to stain DNA is _____. **[Haryana PMT 2008]**
(1) Janus green (2) basic fuchsine (3) crystal violet (4) methylene blue
XI NCERT, Page no. 138

76. RNA is not found in _____. **[Haryana PMT 2008]**
(1) chromosome (2) plasmalemma (3) nucleolus (4) ribosome
XI NCERT, Page no. 136 and 138

77. Cell membrane controls _____. **[JCECE 2008]**
(1) exocytosis (2) endocytosis
(3) both (1) and (2) (4) not controls movement of substance
XI NCERT, Page no. 132

78. Polysome is formed by _____. **[CBSE AIPMT 2008]**

(1) several ribosomes attached to a single rRNA
(2) many ribosomes attached to a strand of endoplasmic reticulum
(3) a ribosome with several subunits
(4) ribosomes attached to each other in a arrangement
XI NCERT, Page no. 129

79. Vacuole in a plant cell _____. **[CBSE AIPMT 2008]**
(1) is membrane bound and contains storage proteins and lipids
(2) is membrane bound and contains water and excretory substance
(3) lacks membrane and contains air
(4) lacks membrane and contains water and excretory substance
XI NCERT, Page no. 134

80. The two subunits of ribosome remain united at a critical ion level of _____. **[CBSE AIPMT 2008]**
(1) copper (2) manganese (3) magnesium (4) calcium
Magnesium joins the two submits of ribosome.

81. Genes present in the cytoplasm of eukaryotic cells are found in _____. **[AIIMS 2008]**
(1) mitochondria and inherited via egg cytoplasm
(2) lysosomes and peroxisomes
(3) Golgi bodies and smooth endoplasmic reticulum
(4) plastids are inherited via male gamete
XI NCERT, Page no. 135 and fact based

82. Golgi apparatus is absent in _____. **[AMU 2008]**
(1) higher plant (2) Yeast
(3) bacteria and blue-green algae (4) liver cells
XI NCERT, Page no. 133 and 134

83. Golgi apparatus _____. **[Punjab PMET 2008]**
I. Transports and modifies material
II. Secrete mucin in respiratory tract
III. Secretes slime in insectivorous plants
Which are correct?
(1) I is incorrect, but II and III are correct (2) II is incorrect, but I and III correct
(3) II and III are incorrect but I is correct (4) All are correct
XI NCERT, Page no. 133 and 134

84. Cellular respiration is carried out by _____. **[Punjab PMET 2008]**
(1) ribosome (2) mitochondria (3) chloroplast (4) Golgi bodies
XI NCERT, Page no. 135

85. Which of the following cell organelles is rich in catabolic enzymes? **[Punjab PMET 2008]**
(1) Chloroplast (2) Mitochondria (3) Golgi complex (4) Ribosome
XI NCERT, Page no. 135

86. Out of the given cell organelles, which does not possess DNA? **[Punjab PMET 2008]**
(1) Peroxisome (2) Chloroplast (3) Mitochondria (4) Nucleus
XI NCERT, Page no. 140

87. Which one of the following is not a plastid? **[DUMET 2008]**
(1) Mitoplast (2) Chromoplast (3) Chloroplast (4) Leucoplast

XI NCERT, Page no. 135

88. Subunits of 80S ribosome are _____. **[DUMET 2008]**
(1) 40S (2) 60S (3) both (1) and (2) (4) none of these
XI NCERT, Page no. 136

89. Match column I and column II and select the correct option **[Kerala CEE 2008]**

Column I		**Column** II	
A.	Endoplasmic reticulum	1.	Stack of cisternae
B.	Spherosome	2.	Store oils or fats
C.	Dictyosome	3.	Synthesis and storage of lipids
D.	Peroxisome	4.	Photorespiration
E.	Elaioplasts	5.	Detoxification of drugs

	A	**B**	**C**	**D**	**E**
(1)	5	3	1	4	2
(2)	5	3	2	4	1
(3)	2	3	1	4	5
(4)	4	3	1	5	2
(5)	3	5	1	4	2

XI NCERT, Page no. 133, 135 and 136

90. Protein synthesis takes place in _____. **[Manipal 2008]**
(1) ribosome (2) chloroplast (3) mitochondria (4) Golgi bodies
XI NCERT, Page no. 136

91. Acid hydrolase is found in _____. **[Haryana PMT 2008]**
(1) Golgi body (2) ER (3) lysosome (4) vacuole
XI NCERT, Page no. 134

92. Which of the following organelle, is present in highest number in secretory cells? **[Haryana PMT 2008]**
(1) Dictyosome (2) ER (3) Lysosome (4) Vacuole
DICTYOSOMES are Golgi complex in plant cells.

93. Highest number of enzymes is found in _____. **[Haryana PMT 2008]**
(1) lysosome (2) chloroplast (3) mitochondria (4) peroxisome
XI NCERT, Page no. 135

94. In which cell organelles, a lipoprotein covering is absent? **[BCECE 2008]**
(1) Ribosomes (2) Lysosomes (3) Mitochondria (4) Peroxisomes
XI NCERT, Page no. 136

95. Cristae are associated with which of the following? **[JCECE 2008]**
(1) Mitochondria (2) Cytoplasm
(3) Protoplasm (4) Endoplasmic reticulum
XI NCERT, Page no. 135

96. The largest subunit of prokaryotic ribosomes is _____. **[J&K CET 2008]**
(1) 30S (2) 40S (3) 50S (4) 60S
XI NCERT, Page no. 136

97. Which of the following is a part of endomembrane system of eukaryotic cell?
(1) Peroxisomes (2) Chloroplasts **[J&KCET 2008]**

(3) Mitochondria (4) Golgi complex
XI NCERT, Page no. 134

98. Which one of the following is not a constituent of cell membrane? **[CBSE AIPMT 2007]**
(1) Cholesterol (2) Glycolipids (3) Proline (4) Phospholipids
XI NCERT, Page no. 131

99. The nucleolus is the site of formation of _____. **[AMU 2007]**
(1) spindle fibres (2) chromosomes (3) ribosomes (4) peroxisomes
XI NCERT, Page no. 138

100. Cell wall consists of _____. **[KCET 2007]**
(1) lignin, hemicellulose, protein and lipid
(2) hemicellulose, cellulose, tubulin and lignin
(3) lignin, hemicellulose, pectin and lipid
(4) lignin, hemicellulose, pectin and cellulose
XI NCERT, Page no. 132

101. Nucleic acid occurs in _____. **[KCET 2007]**
(1) Golgi body (2) lysosomes
(3) cytoplasm (4) mitochondria and chloroplast
XI NCERT, Page no. 135 & 136

102. In fluid mosaic model of plasma membrane, _____. **[RPMT 2007]**
(1) upper layer is non-polar and hydrophilic
(2) polar layer is hydrophobic
(3) phospholipids form a bimolecular layer
(4) proteins form a middle layer
XI NCERT, Page no. 132

103. Pits are formed on the cell wall is due to lack of _____. **[J&K CET 2007]**
(1) cell plate (2) primary wall material
(3) secondary wall material (4) middle lamellae
XI NCERT, Page no. 132

104. Select the wrong statement from the following **[CBSE AIPMT 2007]**
(1) Both chloroplasts and mitochondria contain an inner and an outer membrane.
(2) Both chloroplasts and mitochondria have an internal compartment, the thylakoid space bounded by the thylakoid membrane.
(3) Both chloroplasts and mitochondria contain DNA.
(4) The chloroplasts are generally much larger than mitochondria.
XI NCERT, Page no. 135 & 136

105. Lysosomes are reservoirs (store house) of _____. **[AFMC 2007]**
(1) hydrolytic enzymes (2) secretory glycoproteins
(3) RNA and protein (4) fats or sugars or ATP
XI NCERT, Page no. 134

106. Centrosome is not present in _____. **[UP CPMT 2007]**
(1) cells of higher plants (2) cells of lower plants
(3) cells of higher animals (4) cells of lower animals
XI NCERT, Page no. 137 and 138

107. Thread like protoplasmic projections on the free surface of absorptive cells (such as intestinal cells) are called _____. **[AMU 2007]**
(1) plasmodesmata (2) microfilaments
(3) cilia (4) none of these
XI NCERT, Page no. 136

108. In flagella membrane, which enzyme catalysis ATP activity? **[BHU 2007]**
(1) Cytoplasmic dyenin (2) Asconic dynein
(3) Kinesis (4) Myosin
XI NCERT, Page no. 129

109. Number of proto filaments in microtubule is _____. **[Punjab PMET 2007]**
(1) 13 (2) 12 (3) 5 (4) 10
XI NCERT, Page no. 137

110. Subunits in prokaryotic ribosomes are _____. **[DUMET 2007]**
(1) 60S, 40S (2) 50S, 30S (3) 40S, 30S (4) 50S, 20S
XI NCERT, Page no. 136

111. Enzyme found functional in lysosome is _____. **[DUMET 2007]**
(1) acid phosphatase (2) basic phosphatase (3) oxidoreductase (4) liases
XI NCERT, Page no. 134

112. Extension of plasma membrane in prokaryotic cell is _____. **[DUMET 2007]**
(1) mesosome (2) haploid (3) ribosome (4) none of these
XI NCERT, Page no. 128

113. Fat storing granules are _____. **[DUMET 2007]**
(1) elaioplast (2) amyloplast (3) aleuroplast (4) none of these
XI NCERT, Page no. 135

114. Ribosomes may also be called _____. **[Manipal 2007]**
(1) microsomes (2) dictyosomes (3) ribonucleoproteins (4) oxysomes
XI NCERT, Page no. 129

115. Export firm of the body is _____. **[Haryana PMT 2007]**
(1) Golgi bodies (2) ER (3) nucleus (4) mitochondria
XI NCERT, Page no. 133 and 134

116. Main components of ribosome are _____. **[JCECE 2007]**
(1) DNA and RNA (2) RNA and proteins
(3) DNA and proteins (4) protein and lipids
XI NCERT, Page no. 136

117. Mechanical support, enzyme circulation, protein synthesis and detoxification of drugs are the functions of _____. **[JCECE 2007]**
(1) ER (2) ribosomes (3) dictyosomes (4) chloroplast
XI NCERT, Page no. 133

118. Ribosomes are attached to endoplasmic reticulum through _____. **[J&K CET 2007]**
(1) ribophorin (2) magnesium
(3) peptidyl transferase (4) rRNA
Fact based

119. In multicellular organisms, the 70S ribosomes are found in the _____. **[J&K CET 2007]**
(1) lysosomes (2) mitochondria
(3) nucleus (4) endoplasmic reticulum
XI NCERT, Page no. 136

120. Lipid bilayer is present in _____. **[BHU 2006]**
(1) plasma membrane (2) ribosome (3) chromosome (4) nucleolus
XI NCERT, Page no. 131

121. Which is not true about prokaryotes? **[DUMET 2006]**
(1) DNA is complexed with histones (2) Well developed nucleus absent
(3) Mesosome present (4) Mitochondria absent
XI NCERT, Page no. 128

122. Robert Hooke thought about the cells that _____. **[Manipal 2006]**
(1) something similar to veins and arteries of animals for conducting fluid
(2) smallest structural unit
(3) smallest functional unit
(4) unit of heredity
XI NCERT, Page no. 125

123. The statement *omniscellula e cellula* of Rudolf Virchow has been taken from his book _____. **[Manipal 2006]**
(1) Cellular Pathology (2) Cellular Potency
(3) Micrographia (4) *Scala Naturae*
XI NCERT, Page no. 126

124. The maximum amount of calcium pectate is present in _____.**[Haryana PMT 2006]**
(1) primary cell wall (2) secondary cell wall (3) middle lamella (4) cell membrane
XI NCERT, Page no. 132

125. Which of the following enzymes helps in crossing plasma membrane? **[JCECE 2006]**
(1) Protease (2) Pepsin (3) Dehydrogenase (4) Permease
Permeases are known to increase cell permeability

126. Which of the following statements regarding cilia is not correct? **[CBSE AIPMT 2006]**
(1) The organised beating of cilia is controlled by fluxes of Ca^{2+} across the membrane.
(2) Cilia are hair-like cellular appendages.
(3) Microtubules of cilia are composed of tubulin.
(4) Cilia contain an outer ring of nine doublet.microtubules surrounding two single microtubules.
XI NCERT, Page no. 137

127. Which of the following statements regarding mitochondrial membrane is not correct? **[CBSE AIPMT 2006]**
(1) The outer membrane is permeable to all kinds of molecules.
(2) The enzymes of the electron transfer chain are embedded in the outer membrane.
(3) The inner membrane is highly convoluted forming a series of infoldings.
(4) The outer membrane resembles a sieve.
XI NCERT, Page no. 134 and 135

128. In prokaryotes, chromatophores are _____. **[AIIMS 2006]**
(1) specialised 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 that may become extensive and complex in photosynthetic bacteria
XI NCERT, Page no. 135 and 136

129. Enzyme catalase is seen in _____. **[AIIMS 2006]**
(1) lysosome (2) spherosome (3) peroxisome (4) all of these
Peroxisomes exhibit the presence of cataloses

130. Difference between rough and smooth endoplasmic reticulum is that _____. **[UP CPMT 2006]**
(1) rough has ribosomes (2) smooth has ribosomes
(3) smooth takes part in protein synthesis (4) both has F_1-particles
XI NCERT, Page no. 132

131. Which of the following subunits of ribosome is composed of 23S rRNA and a 5S rRNA + 32 different proteins? **[Kerala CEE 2006]**
(1) 50S (2) 70S (3) 30S (4) 60S
(5) 40 S
XI NCERT, Page no. 136

132. Match the items in column I with column II and choose the correct option **[Kerala CEE 2006]**

Column I		**Column II**	
A.	Sap vacuole	1.	Contain digestive enzyme
B.	Contractile vacuole	2.	Store metabolic gases
C.	Food vacuole	3.	Osmoregulation
D.	Air vacuole	4.	Store lipids
E.	Spherosomes	5.	Store and concentrate mineral salts and nutrients

	A	**B**	**C**	**D**	**E**
(1)	5	3	1	2	4
(2)	2	3	4	5	1
(3)	5	2	3	1	4
(4)	5	3	2	4	1
(5)	4	1	3	5	2

XI NCERT, Page no. 134

133. Rough endoplasmic reticulum differs from smooth walled endoplasmic reticulum due to the presence of _____. **[MHT CET 2006]**
(1) DNA (2) nucleus
(3) ribosomes (4) ergastic substance
XI NCERT, Page no. 133

134. Suicidal bags are _____. **[RPMT 2006]**
(1) lysosomes (2) Golgi bodies (3) ribosomes (4) chloroplast

135. Which of the following is the site of lipid synthesis? **[RPMT 2006]**
(1) Rough ER (2) Smooth ER (3) Golgi bodies (4) Ribosome
XI NCERT, Page no. 133

136. Function of rough endoplasmic reticulum is _____. **[Haryana PMT 2006]**
(1) fat synthesis (2) protein synthesis
(3) starch synthesis (4) autolysis

XI NCERT, Page no. 133

137. Choose the incorrect match **[JCECE 2006]**
(1) Nucleus — RNA
(2) Lysosome — Protein synthesis
(3) Mitochondria — Respiration
(4) Cytoskeleton — Microtubules
XI NCERT, Page no. 134

138. Which of the following pairs lack the unit membrane? **[J&K CET 2006]**
(1) Nucleus and ER
(2) Mitochondria and chloroplast
(3) Ribosome and nucleolus
(4) Golgi body arid lysosome
XI NCERT, Page no. 136 and 138

139. Cell membrane is made up of _____. **[AFMC 2005]**
(1) protein
(2) cellulose
(3) lipids
(4) lipids, carbohydrates and protein
XI NCERT, Page no. 131

140. Two animal cells are interconnected by _____. **[AMU 2005]**
(1) plasmodesmata
(2) cell wall
(3) desmosome
(4) plasma membrane
Desmosomes are connections between animal cells.

141. The fluidity of membranes in a plant in cold weather may be maintained by _____. **[Punjab PMET 2005]**
(1) increasing the number of phospholipids with unsaturated hydrocarbon tails
(2) increasing the proportion of integral proteins
(3) increasing concentration of cholesterol in membrane
(4) increasing the number of phospholipids with saturated hydrocarbon tail
XI NCERT, Page no. 131 and 132

142. Which of the following is characteristic of phospholipids of plasma membrane? **[Kerala CEE 2005]**
(1) One non-polar head and two polar tails
(2) One polar head and two non-polar tails
(3) Two non-polar heads and one polar tail
(4) Two polar heads and one non-polar tail
(5) Two polar heads and two polar tails
XI NCERT, Page no. 131 and 132

143. Read the following statements and identify the correct option given
I. In prokaryotic cell, the nuclear membrane, chloroplast, mitochondria, microtubules and different kinds of pili are absent.
II. In eukaryotic cell, the nuclear membrane, chloroplast, mitochondria and pili are present.
III. In prokaryotic cell, the ribosome is of 70S type and in mitochondria of eukaryotic animal cell, the ribosome is of 80S type. **[Kerala CEE 2005]**
(1) I and II are wrong; III is correct
(2) I is correct; II and III are wrong
(3) I and II are correct; III is wrong
(4) I and III are correct; II is wrong
(5) I, II and III are wrong
XI NCERT, Page no. 134, 135 and 136

144. Structure of nuclear membrane helps in _____. **[RPMT 2005]**
(1) organisation of the spindle
(2) synapsis of homologous chromosome
(3) nucleo-cytoplasmic exchange of material
(4) anaphasic separation of daughter chromosome
XI NCERT, Page no. 131 and 138

145. The term 'protoplasm' was coined by _____. **[JCECE 2005]**
(1) Virchow (2) Purkinje (3) Dujardin (4) Kolliker
Purkinje coined the term 'protoplasm.'

146. The study related to the structure and function of a cell' is called _____. **[JCECE 2005]**
(1) physiology (2) cytology (3) histology (4) cellology
XI NCERT, Page no. 125

147. Phosphorus is present in _____. **[J&K CET 2005]**
(1) protein (2) DNA (3) RNA (4) both (2) and (3)
XI NCERT, Page no. 138 and 139

148. Plasma membrane helps in _____. **[J&K CET 2005]**
(1) transportation of only water in and out of cell
(2) protein synthesis
(3) osmoregulation
(4) nucleic acid synthesis
XI NCERT, Page no. 132

149. The cell as a basic unit of structure of living things was discovered by _____. **[J&K CET 2005]**
(1) Aristotle (2) Robert Hooke
(3) Schleiden and Schwann (4) Gregor Mendel
XI NCERT, Page no. 125

150. In which one of the following would you expect to find glyoxysomes? **[AIIMS 2005]**
(1) Endosperm of wheat (2) Endosperm of *Castor*
(3) Palisade cells in leaf (4) Root hairs
XI NCERT, Page no. 140

151. Many cells function properly and divide mitoticallyeven though they do not have _____.
(1) plasma membrane (2) cytoskeleton **[AIIMS 2005]**
(3) mitochondria (4) plastids
XI NCERT, Page no. 135 and 136

152. Three of the following statements regarding cellorganelles are correct, while one is wrong. Which one is wrong? **[AIIMS 2005]**
(1) Lysosomes are double membraned vesicles budded off from Golgi apparatus and contain digestive enzymes.
(2) Endoplasmic reticulum consists of a network of membranous tubule and helps in transport,synthesis and secretion
(3) Leucoplasts are bound by two membranes, lackpigment but contain their own DNA and protein synthesizing machinery.
(4) Sphaerosomes are single membrane bound and areassociated with synthesis and storage of lipids.
XI NCERT, Page no. 134

153. Which one is single membrane cell organelle? **[UP CPMT 2005]**
(1) Endoplasmic reticulum (2) Mitochondria
(3) Lysosomes (4) Chloroplast
XI NCERT, Page no. 134

154. The main function of lysosome is _____. **[AMU 2005]**
(1) sexual reproduction (2) extracellular digestion

(3) intracellular digestion (4) both (2) and (3)
XI NCERT, Page no. 134

155. Endoplasmic reticulum is in continuation with _____. **[BHU 2005]**
(1) Golgi body (2) nuclear membrane (3) mitochondria (4) cell wall
XI NCERT, Page no. 138

156. Which of the following is not a function of vacuole inplant cell? **[Punjab PMET 2005]**
(1) Storage (2) Waste disposal
(3) Cell elongation and protection (4) Production of hydrogen peroxide
XI NCERT, Page no. 134

157. The ATP synthase of chloroplasts is like that of _____. **[Punjab PMET 2005]**
(1) peroxisomes (2) Golgi body (3) microsomes (4) mitochondria
XI NCERT, Page no. 135

158. Fat is stored in the plant cell in _____. **[Kerala CEE 2005]**
(1) lysosome (2) spherosome
(3) microsome (4) peroxisome
(5) macrophage
XI NCERT, Page no. 140

159. Match the following and choose the correct combination from the options given below **[Kerala CEE 2005]**

Cell Organelle	**Function**
A. Endoplasmic reticulum	1. Take part in cellular respiration
B. Free ribosome	2. Take part in osmoregulation and excretion
C. Mitochondrion	3. Synthesis of lipids
D. Contractile vacuole	4. Synthesise non-secretory proteins

	A	**B**	**C**	**D**
(1)	3	4	1	2
(2)	1	2	4	3
(3)	3	2	1	4
(4)	3	2	4	1
(5)	2	1	3	4

XI NCERT, Page no. 133, 134 and 135

160. F_1 -particles comprise of _____. **[MHT CET 2005]**
(1) head and base (2) base and stalk
(3) head and stalk (4) head, base and stalk
XI NCERT, Page no. 135

161. Term basal body is associated with the development of ___. **[RPMT 2005]**
(1) cilia and flagella (2) cell plate
(3) phragmoplast (4) kinetochore
XI NCERT, Page no. 137

162. Golgi body originates from _____. **[RPMT 2005]**
(1) lysosome (2) endoplasmic reticulum
(3) mitochondria (4) cell membrane
XI NCERT, Page no. 133 and 134

163. Quantasomes are found in _____. **[RPMT 2005]**

(1) mitochondria (2) chloroplast
(3) lysosome (4) endoplasmic reticulum
XI NCERT, Page no. 136

164. The prokaryotic cell does not contain _____. **[J&K CET 2005]**
(1) chromosome (2) mitochondria (3) mesosome (4) ribosome
XI NCERT, Page no. 135

165. Organelle important in spindle formation during _____. **[J&K CET 2005]**
(1) Golgi body (2) chloroplast (3) centriole (4) mitochondrion
XI NCERT, Page no. 137 ad 138

166. The surface of the rough endoplasmic reticulum (ER) is covered with ____. **[J&K CET 2005]**
(1) ribosome (2) DNA (3) RNA (4) glucose
XI NCERT, Page no. 136

167. According to widely accepted 'fluid mosaic model' cellmembranes are semi-fluid, where lipids and integralproteins can diffuse randomly. In recent years, thismodel has been modified in several respects. In thisregard, which of the following statement is incorrect?
[CBSE AIPMT 2004]
(1) Proteins in cell membranes can travel within the lipid bilayer.
(2) Proteins can remain confined within certain domains of the membrane.
(3) Proteins can also undergo flip-flop movements in the lipid bilayer.
(4) Many proteins remain completely embedded within the lipid bilayer.
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168. Channel proteins are involved in _____. **[AMU 2004]**
(1) transport of enzymes (2) water transport
(3) active transport of ions (4) passive transport of ions
XI NCERT, Page no. 132

169. Secondary cell wall grows by _____. **[DUMET 2004]**
(1) deamination (2) calcicole (3) apposition (4) none of these
XI NCERT, Page no. 132

170. Difference between prokaryote and eukaryote is in _____. **[RPMT 2004]**
(1) cell size (2) cell shape
(3) chemical composition of protoplasm (4) organisation of nuclear material
XI NCERT, Page no. 138

171. In protoplasm, fat store in the form of _____. **[Guj CET 2004]**
(1) polypeptide (2) triglyceride
(3) polysaccharide (4) nucleoside
Fats are stored in the form of triglycerides in the protoplasm

172. Plant and animal cells, both have _____. **[Haryana PMT 2004]**
(1) cell membrane and nucleolus (2) cell membrane and cell wall
(3) nucleolus and chloroplast (4) nucleus and cell wall
XI NCERT, Page no. 132 & 138

173. If the cell wall of a cell is removed, the remaining is called _____. **[JCECE 2004]**
(1) etioplast (2) aleuroplast (3) amyloplast (4) protoplast
A cell without cell wall is called protoplast.

174. In prokaryotic cells, _____. **[J&KCET 2004]**
(1) internal compartments are absent (2) nucleus is absent
(3) ribosomes are 70S (4) all of the above
XI NCERT, Page no. 136

175. Plant cell may be without _____. **[J&KCET 2004]**
(1) plastids (2) vacuoles (3) centrioles (4) cell wall
XI NCERT, Page no. 137 and 138

176. Chlorophyll in chloroplasts is located in _____. **[CBSE AIPMT 2004]**
(1) grana (2) pyrenoid
(3) stroma (4) both (1) and (3)
XI NCERT, Page no. 136

177. The main organelle involved in modification and routing of newly synthesised proteins to their destination is _____. **[CBSEAIPMT 2004]**
(1) mitochondria (2) endosplasmic reticulum
(3) lysosome (4) chloroplast
XI NCERT, Page no. 133

178. In chloroplasts, chlorophyll is present in the _____. **[AFMC 2004]**
(1) outer membrane (2) inner membrane
(3) thylakoids (4) stroma
XI NCERT, Page no. 136

179. The non-membranous organelles are _____. **[AMU 2004]**
(1) centrioles (2) ribosomes (3) nucleolus (4) all of these
XI NCERT, Page no. 136 and 138

180. Single membrane bound organelles are _____. **[DUMET 2004]**
(1) lysosome (2) spherosome (3) glyoxysome (4) all of these
XI NCERT, Page no. 134

181. Ribosomes that occur exclusively in mitochondria are ____. **[DUMET 2004]**
(1) 70S (2) 55S (3) 30S (4) 50S
XI NCERT, Page no. 136

182. The 'power house' of cell is _____. **[KCET 2004]**
(1) mitochondria (2) lysosome (3) ribosome (4) Golgi complex
XI NCERT, Page no. 135

183. An organism exclusively with 70S type of ribosome contains _____.
(1) DNA enclosed within the nuclear membrane **[EAMCET 2004]**
(2) circular naked DNA
(3) double-stranded DNA with protein coat
(4) single-stranded DNA with protein coat
XI NCERT, Page no. 129 and 136

184. Inner membrane of mitochondria forms _____. **[MHT CET 2004]**
(1) cisternae (2) cristae (3) thylakoids (4) lamellae
XI NCERT, Page no. 135

185. F_1-particles present in mitochondria are _____. **[MHT CET 2004]**
(1) episomes (2) spherosomes (3) oxysomes (4) microsomes
XI NCERT, Page no. 135

186. Golgi complex works for _____. **[RPMT 2004]**
(1) excretion (2) respiration (3) secretion (4) reduction
XI NCERT, Page no. 134

187. Spindles are formed by _____. **[RPMT 2004]**
(1) microtubules (2) endoplasmic reticulum
(3) Golgi body (4) peroxisomes
XI NCERT, Page no. 136

188. Acrosome is formed by _____. **[RPMT 2004]**
(1) mitochondria (2) Golgi body (3) ribosomes (4) lysosome
XI NCERT, Page no. 134

189. DNA is not present in _____. **[AIPMT 2015]**
(1) ribosomes (2) nuclei (3) mitochondria (4) chloroplast
XI NCERT, Page no. 136

190. Nuclear envelope is a derivative of _____. **[AIPMT 2015]**
(1) membrane of Golgi complex (2) microtubules
(3) rough endoplasmic reticulum (4) smooth endoplasmic reticulum
XI NCERT, Page no. 138

191. The structures that are formed by stacking of organized flattened membranous sacs in the chloroplasts are ____. **[AIPMT 2015]**
(1) grana (2) stroma lamellae (3) stroma (4) cristae
XI NCERT, Page no. 136

192. The chromosomes in which centromere is situated close to one end are __. **[AIPMT 2015]**
(1) acrocentric (2) telocentric (3) sub-metacentric (4) metacentric
XI NCERT, Page no. 139

193. Which one of the following is not an inclusion body found in prokaryotes? **[AIPMT 2015]**
(1) Cyanophycean granule (2) Glycogen granule
(3) Polysome (4) Phosphate granule
XI NCERT, Page no. 139

194. Select the correct matching in the following pairs **[AIPMT 2015]**
(1) Smooth ER - Synthesis of lipids (2) Rough ER - Synthesis of glycogen
(3) Rough ER - Oxidation of fatty acids (4) Smooth ER - Oxidation of phospholipids
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195. A protoplast is a cell __. **[RE-AIPMT 2015]**
(1) without cell wall (2) without plasma membrane
(3) without nucleus (4) undergoing division
Cell with out cell wall is called a protoplast

196. Cellular organelles with membranes are ____. **[RE-AIPMT 2015]**
(1) Lysosomes, Golgi apparatus and mitochondria

(2) Nuclei, ribosomes and mitochondria
(3) Chromosomes, ribosomes and endoplasmic reticulum
(4) Endoplasmic reticulum, ribosomes and nuclei
XI NCERT, Page no. 134, 135 and 136

197. Which of the following is not membrane bound? **[RE-AIPMT 2015]**
(1) Mesosomes (2) Vacuoles (3) Ribosomes (4) Lysosomes
XI NCERT, Page no. 136

198. The function of the gap junction is to _____. **[RE-AIPMT 2015]**
(1) stop substance from leaking across a tissue
(2) performing cementing to keep neighbouring cells together
(3) facilitate communication between adjoining cells by connecting the cytoplasm for rapid transfer of ions, small molecules and some large molecules
(4) separate two cells from each other
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199. Microtubules are the constituents of _____. **[NEET- I 2016]**
(1) centrosome, nucleosome and centrioles (2) cilia, flagella and peroxisomes
(3) spindle fibres, centrioles and cilia (4) centrioles, spindle fibres and chromatin
XI NCERT, Page no. 136

200. Mitochondria and chloroplast are _____. **[NEET- I 2016]**
(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?
(1) Both (a) and (b) are false (2) Both (a) and (b) are correct
(3) (b) is true but (a) is false (4) (a) is true but (b) is false
XI NCERT, Page no. 134, 135 and 136

201. A cell organelle enzymes containing hydrolytic enzyme is _____. **[NEET- II 2016]**
(1) lysosome (2) microsome (3) ribosome (4) mesosome
XI NCERT, Page no. 134

202. Which one of the following cell organelles is enclosed by a single membrane? **[NEET- II 2016]**
(1) Chloroplasts (2) Lysosomes (3) Nuclei (4) Mitochondria
XI NCERT, Page no. 134

203. Water soluble pigments found in plant cell vacuoles are _____. **[NEET- II 2016]**
(1) chlorophylls (2) carotenoids (3) anthocyanins (4) xanthophylls
XI NCERT, Page no. 134

204. Which of the following is not a feature of the plasmids? **[NEET- II 2016]**
(1) Circular structure (2) Transferable
(3) Single stranded (4) Independent replication
XI NCERT, Page no. 128

205. A complex of ribosomes attached to a single strand of RNA is known as __. **[NEET- II 2016]**
(1) polymer (2) polypeptide (3) Okazaki fragment (4) polysome
XI NCERT, Page no. 129

206. Select the WRONG statement **[NEET- II 2016]**
(1) Bacterial cell wall is made up of peptidoglycan.
(2) Pili and fimbriae are mainly involved in motility of bacterial cells.
(3) Cyanobacteria lack flagellated cells.
(4) *Mycoplasma* is a wall-less microorganism.
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207. Select the MISMATCH **[NEET- II 2016]**
(1) Gas vacuoles – Green bacterial cells (2) Large central vacuoles – Animal cells
(3) Protists – Eukaryotes (4) Methanogens – Prokaryotes
XI NCERT, Page no. 134

208. Which of the following cell organelle is responsible for extracting energy from carbohydrates to form ATP? **[NEET- 2017]**
(1) Lysosome (2) Ribosome (3) Chloroplast (4) Mitochondrion
XI NCERT, Page no. 134 & 135

209. Which of the following components provides sticky character to the bacterial cell? **[NEET- 2017]**
(1) Cell wall (2) Nuclear membrane (3) Plasma membrane (4) Glycocalyx
XI NCERT, Page no. 128

210. Which among the following are the small living cells, known without a definite cell wall, pathogenic to plants as well as animals and can survive without oxygen? **[NEET- 2017]**
(1) *Bacillus* (2) *Pesudomonas* (3) *Mycoplasma* (4) *Nostoc*
XI NCERT, Page no. 20 and 126

211. Select the INCORRECT match **[NEET- 2018]**
(1) Lampbrush – Diplotene bivalents chromosomes
(2) Allosomes – Sex chromosomes
(3) Sub-metacentric – L-shaped chromosomes
(4) Polytene – Ooocytes of amphibian chromosomes
XI NCERT, Page no. 139

212. Many ribosomes may associate with a single mRNA to form multiple copies of a polypeptide simultaneously. Such strings of ribosomes are termed as ____. **[NEET- 2018]**
(1) polysome (2) polyhedral bodies (3) plastidome (4) nucleosome
XI NCERT, Page no. 129

213. Which of the following events does not occur in rough endoplasmic reticulum? **[NEET- 2018]**
(1) Protein folding (2) Protein glycosylation
(3) Cleavage of signal peptide (4) Phospholipid synthesis
XI NCERT, Page no. 133

214. The Golgi complex participates in _____. **[NEET- 2018]**
(1) fatty acid breakdown (2) formation of secretory vesicles
(3) respiration in bacteria (4) activation of amino acids
XI NCERT, Page no. 133 and 134

215. Which of the following is true for nucleolus? **[NEET- 2018]**
(1) Larger nucleoli are present in dividing cells.
(2) It is a membrane-bound structure.

(3) It takes part in spindle formation.
(4) It is a site for active rRNA synthesis.
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216. Match the Column I with Column II **[NEET- 2019]**

Column I	**Column II**
a. Golgi apparatus	(i) Synthesis of protein
b. Lysosomes	(ii) Trap waste and excretory products
c. Vacuoles	(iii) Formation of glycoproteins and glycolipids
d. Ribosomes	(iv) Digesting biomolecules

Choose the right match from options given below
(1) a-(iii), b-(iv), c-(ii), d-(i) (2) a-(iv), b-(iii), c-(i), d-(ii)
(3) a-(iii), b-(ii), c-(iv), d- (i) (4) a-(i), b-(ii), c-(iv), d-(iii)
XI NCERT, Page no. 133 & 134

217. Which of the following nucleic acids is present in an organism having 70S ribosomes only? **[NEET- 2019]**
(1) Single stranded DNA with protein coat
(2) Double stranded circular naked DNA
(3) Double stranded DNA enclosed in nuclear membrane
(4) Double stranded circular DNA with histone proteins
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218. Non-membranous nucleoplasm structures in nucleus are the site for active synthesis of _____. **[NEET- 2019]**
(1) protein (2) Mrna (3) rRNA (4) tRNA
XI NCERT, Page no. 138

219. Which of the following cell organelle is present in the highest number in secretory cells? **[NEET- 2019]**
(1) Mitochondria (2) Golgi complex
(3) Endoplasmic reticulum (4) Lysosome
XI NCERT, Page no. 133 and 134

220. Which of the following statements is not correct? **[NEET- 2019]**
(1) Lysosomes are formed by the process of packaging in the ER.
(2) Lysosomes have numerous hydrolytic enzymes.
(3) The hydrolytic enzyme of lysosome are active under acidic pH.
(4) Lysosomes are membrane bound structures.
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221. Which of the following pair of organelles does not contain DNA? **[NEET- 2019]**
(1) Nuclear envelope and mitochondria (2) Mitochondria and lysosomes
(3) Chloroplast and vacuole (4) Lysosomes and vacuoles
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222. The shorter and longer arms of sub-metacentric chromosomes are referred to as _____. **[NEET- 2019]**
(1) m-arm and n-arm respectively (2) s-arm and l-arm respectively
(3) p-arm and q-arm respectively (4) q-arm and p-arm respectively
The short arm of sub metacentric chromosome is donated by 'p' whereas the long arm of sub-metacentric chromosome is denoted by q.

223. Which of the following statements regarding mitochondria is incorrect? **[NEET- 2019]**
(1) Mitochondrial matrix contains single circular DNA molecule and ribosome.
(2) Outer membrane is permeable to movement of carbohydrates, fats and proteins.
(3) Enzymes of electron transport are embedded in outer membrane.
(4) Inner membrane is convoluted with infoldings.
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224. The concept of 'omnis-cellula-e-cellula' regarding cell division was first proposed by _____, **[NEET- 2019]**
(1) Aristotle (2) Rudolf Virchow
(3) Theodore Schwann (4) Schleiden
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225. Which is the important site of formation of glycoproteins and glycolipids in eukaryotic cells? **[NEET- 2019]**
(1) Polysosmes (2) Endoplasmic reticulum
(3) Peroxisomes (4) Golgi bodies
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226. Which of the following statements about inclusion bodies is incorrect? **[NEET- 2020]**
(1) These represent reserve material in cytoplasm.
(2) They are not bound by any membrane.
(3) These are involved in ingestion of food particles.
(4) They lie free in the cytoplasm.
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227. Inclusion bodies of blue-green, purple and green photosynthetic bacteria are ___. **[NEET- 2020]**
(1) contractile vacuoles (2) gas vacuoles
(3) centrioles (4) microtubules
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228. The biosynthesis of ribosomal RNA occurs in _____. **[NEET- 2020]**
(1) ribosomes (2) Golgi apparatus (3) microbodies (4) nucleolus
XI NCERT, Page no. 136

229. The size of Pleuropneumonia-like Organism (PPLO) is _____. **[NEET- 2020]**
(1) 0.02 µm (2) 1-2 µm (3) 10-20 µm (4) 0.1 µm
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230. Match the following columns and select the correct option **[NEET- 2020]**

Column-I	**Column-II**
(a) Smooth endoplasmic reticulum	(i) Protein synthesis
(b) Rough endoplasmic reticulum	(ii) Lipid synthesis
(c) Golgi complex	(iii) Glycosylation
(d) Centriole	(iv) Spindle formation

(1) (a)-(ii), (b)-(i), (c)- (iii), (d)- (iv)
(2) (a)-(iii), (b)-(i), (c)-(ii), (d)-(iv)
(3) (a)-(iv), (b)-(ii), (c)-(i), (d)-(iii)
(4) (a)-(i), (b)-(ii), (c)-(iii), (d)-(iv)
XI NCERT, Page no. 133 & 134

231. Which of the following is an incorrect statement? **[NEET- 2021]**
(1) The perinuclear space forms a barrier between the materials present inside the nucleus and

that of the cytoplasm.
(2) Nuclear pores act as passages for proteins and RNA molecules in both directions between nucleus and cytoplasm.
(3) Mature sieve tube elements possess a conspicuous nucleus and usual cytoplasmic organelles.
(4) Microbodies are present both in plant and animal cells.
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232. Match List-I with List –II **[NEET- 2021]**

List-I	**List-II**
(a) Cristae	(i) Primary constriction 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

	(a)	(b)	(c)	(d)
(1)	(iii)	(iv)	(i)	(ii)
(2)	(ii)	(iii)	(iv)	(i)
(3)	(iv)	(iii)	(ii)	(i)
(4)	(i)	(iv)	(iii)	(ii)

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233. When the centromere is situated in the middle of two equal arms of chromosomes, the chromosome is referred as _____. **[NEET- 2021]**
(1) sub-metacentric (2) acrocentric (3) metacentric (4) telocentric
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234. The organelles that are included in the endomembrane system are _____. **[NEET- 2021]**
(1) Golgi complex, mitochondria, ribosomes and lysosomes
(2) Golgi complex, endoplasmic reticulum, mitochondria and lysosomes
(3) endoplasmic reticulum, mitochondria, ribosomes and lysosomes
(4) endoplasmic reticulum, Golgi complex, lysosomes and vacuoles
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235. Match List-I with List-II **[NEET- 2022]**

List-I		**List-II**	
(a)	Metacentric chromosome	(i)	Centromere situated close to the end forming one extremely short and one very long arms
(b)	Acrocentric chromosome	(ii)	Centromere at the terminal end
(c)	Sub-metacentric	(iii)	Centromere in the middle forming two equal arms of chromosomes
(d)	Telocentric chromosome	(iv)	Centromere slightly away from the middle forming one shorter arm and one longer arm

Choose the correct answer from the options given below:
(1) (a)-(i), (b)-(iii), (c)-(ii), (d)-(iv) (2) (a)-(ii), (b)-(iii), (c)-(iv), (d)-(i)
(3) (a)-(i), (b)-(ii), (c)-(iii), (d)-(iv) (4) (a)-(iii), (b)-(i), (c)-(iv), (d)-(ii)
(4)
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236. Which of the following statements with respect to Endoplasmic Reticulum is incorrect ? **[NEET- 2022]**
(1) SER is devoid of ribosomes (2) In prokaryotes only RER are present

(3) SER are the sites for lipid synthesis (4) RER has ribosomes attached to ER

(2)

XI Prokaryotes do not show RER

237. Movement and accumulation of ions across a membrane against their concentration gradient can be explained by **[NEET - 2023]**

(1) Facilitated Diffusion (2) Passive Transport

(3) Active Transport (4) Osmosis

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238. Which of the following are NOT considered as the part of endomembrane system?

A. Mitochondria B. Endoplasmic C. Chloroplasts D. Golgi complex

E. Peroxisomes **[NEET - 2023]**

Choose the most appropriate answer from the options given below

(1) A, C and E only (2) A and D only

(3) A, D and E only (4) B and D only

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239. Which of the following functions is carried out by cytoskeleton in a cell? **[NEET - 2023]**

(1) Protein synthesis (2) Motility

(3) Transportation (4) Nuclear division

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—♦—♦—♦—