BIOLOGY

BOOKS - MTG BIOLOGY (HINGLISH)

CELL - THE UNIT OF LIFE

Cell The Unit Of Life

1. Unicellular microscopic organisms were first studied by

A. Robert Hooke

B. Priestley

C. Pasteur

D. Leeuwenhoek.

Answer: D

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2. The most likely method, used to determine the structural details of a cell organelle is

A. autoradiography

B. microdissection

C. electron microscopy

D. phase contrast microscopy.

Answer: C

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3. The figures of cork cells as seen by Robert Hooke were published in the book

A. Origin of species

B. Species plantarum

C. Genera plantrum

D. Micrographia.

Answer: D

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4. Cell theory was formulated by

A. Schleiden and Schwann

B. Robert Hooke

C. Leeuwenhoek

D. Marcello Malpighi.

Answer: A

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5. Omnis cellula-e cellula' i.e., new cells arise from prexisting cells , this statement was given by

A. Schleiden and Schwann

B. Rudolf Virchow

C. Robert Brown

D. Robert Hooke.

Answer: B

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6. 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 kinds of ce

A. A-(i), B-(iii), C-(iv), (D-(ii)

B. A-(i), B-(iii), C-(ii), D-(iv)

C. A-(iii), B-(i), C-(iv), D-(ii)

D. A-(i), B-(iv), C-(ii), D-(iii)

Answer: A

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7. Who proposed a modification in the cell theory ?

A. Schleiden and Schwann

B. Rudolf Virchow

C. Robert Hooke

D. Marcello Malpighi.

Answer: B

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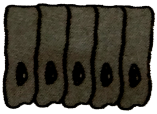
8. Tarun observed a slide of white blood cells under microscope. His teacher asked him to draw the diagram. Select the diagram which should be drawn by Taeun.

A. (a) 

B. (b) 

C. (c) 

D. (d) 

Answer: B

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9. What is true about genetic material of a prokaryotic cell?

A. Lacks histones

B. Not enveloped by nuclear membrane

C. Composed of a single circular DNA molecule

D. All of these

Answer: D

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

A. Plasmids

B. Nucleoid

C. Mesosomes

D. Bacteriophages

Answer: A

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11. Prokaryotic cells are generally _____ and multiply _____ than the eukaryotic cells.

A. smaller, slower

B. larger, slower

C. smaller, faster

D. larger, faster

Answer: C

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12. Select the option which arranges 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), staining with weak alkaline solution of crystal violet (4).

A. $4 \rightarrow 1 \rightarrow 2 \rightarrow 3$

B. $3 \rightarrow 2 \rightarrow 1 \rightarrow 4$

C. $3 \rightarrow 1 \rightarrow 2 \rightarrow 4$

D. $4 \rightarrow 2 \rightarrow 3 \rightarrow 1$

Answer: A

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13. Which of the given statements are correct ?

(i) Bacillus subtilis is a Gram $(+ve)$ bacteria.

(ii) Escherichia coil is a Gram $(-ve)$ bacteria.

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

A. (i) and (ii)

B. (ii) and (iii)

C. (i) and (iii)

D. (i), (ii) and (iii)

Answer: D

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14. Glycocalyx (mucilage sheath) of a bacterial cell may occur in the form of a loose sheath called _____ or it may be thick and tough called _____.

A. capsule, slime layer

B. slime layer, capsule

C. mesosome, capsule

D. mesosome, slime layer

Answer: B

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15. Correct sequence of layer of bacerial cell envelope from outward to inward is

A. Cell wall $\rightarrow$ Glycocalyx $\rightarrow$ Cell wall

B. Cell membrane $\rightarrow$ Glycocalyx $\rightarrow$ Cell wall

C. Glycocalyx $\rightarrow$ Cell wall $\rightarrow$ Cell membrane

D. Glycocalyx $\rightarrow$ membrane $\rightarrow$ Cell well.

Answer: C

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16. Mesosomes are the infoldings of cell membrane, which

(i) are present in both prokaryotic and equkaryotic cells.

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

(iii) increase the surface area of plasma membrane.

A. (i) and (ii)

B. (ii) and (iii)

C. (i) and (iii)

D. (i), (ii) and (iii)

Answer: B

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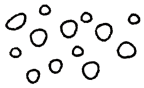
17. Which of the following is enveloped by a nuclear membrane ?

A. (a)

Typical bacteria

B. (b)



PPLO

C. (c)  Viruses

D. None of these

Answer: D

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18. If you remove the fimbriae from the bacterial cell, which of the following would you expect to happen ?

A. The bacteria could no longer swim.

B. The bacteria would not adhere to the host tissue.

C. Transportation of molecules across the membrane would stop.

D. The shape of bacteria would change.

Answer: B

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19. The type of ribosomes found in prokaryotes is

A. 80S type

B. 70S type

C. 30S type

D. 50S type

Answer: B

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20. Which of these is not correct regarding ribosomes ?

A. Non-membrane bound

B. Present in the cytoplasm and on RER

C. Absent in chloroplast and mitochondria

D. Take part in protein synthesis

Answer: C

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21. Polyribosomes are aggregation of

A. ribosomes and rRNA

B. peroxisomes

C. several ribosomes held together by a string of mRNA

D. rRNA.

Answer: C

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22. Plant cells differ from animal cells in having

A. cell wall

B. plastids

C. a large central vacuole

D. All of these

Answer: D

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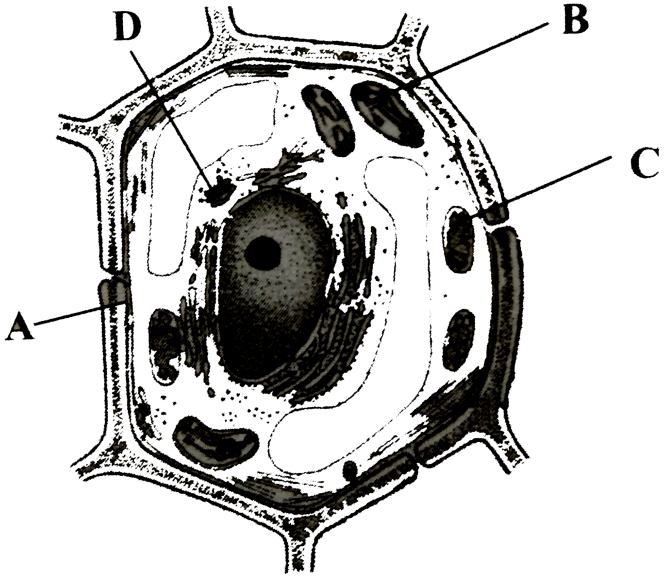
23. Identify the parts labelled as A, B, C and D in the given ultrastructure of a plant cell and select the correct option.



A.

A	B	C	D
Plasma	Chloroplast	Mitochondrion	Golgi

B.

A	B	C	D
Plasma	Mitochondrion	Chloroplast	RER

C.

A	B	C	D
Cell wall	Mitochondrion	Chloroplast	RER

D.

A	B	C	D
Cell wall	Chloroplast	Mitochondrion	Golgi complex

Answer: A

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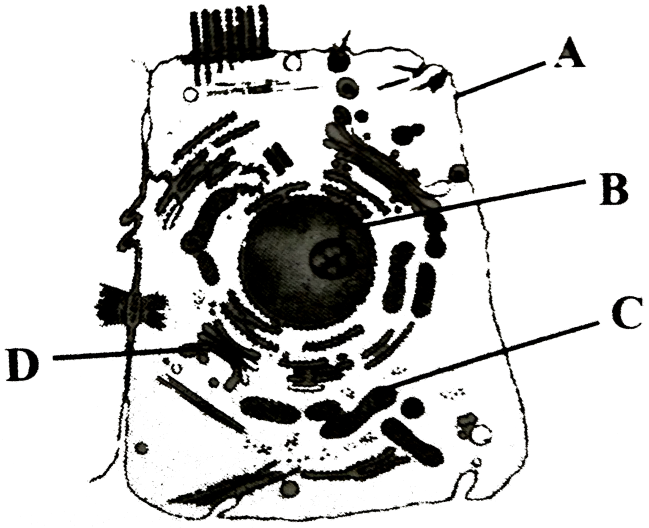
24. Given is the ultrastructure of an animal cell. Identify the parts marked as A, B, Ca nd D.



	A	B	C	D
A.	Plasma membrane	Nucleus	Mitochondrion	Golgi complex
B.	Plasma membrane	Vacuole	Mitochondrion	Golgi complex
C.	Cell wall	Nucleus	Mitochondrion	RER
D.	Cell wall	Vacuole	Chloroplast	Golgi complex

Answer: A

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25. According to unit membrane structure, the thickness of plasma membrane is about

A. 35Å

B. 20Å

C. 75Å

D. 100Å

Answer: C

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26. The best material for the study of structure of cell membrane is

A. RBC of human

B. liver cell

C. kidney cell

D. muscle cell.

Answer: A

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27. Which chemical property is shared by all types of lipids forming the plasma membrane ?

A. Sugar component

B. Glycerol backbone

C. Phosphate group

D. Hydrophobic region

Answer: D

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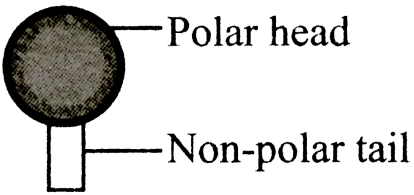
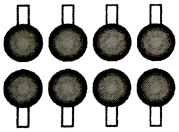
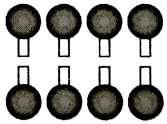
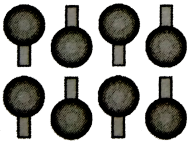
28. The lipid molecules present in plasma membrane have polar heads and non-polar tails (as shown in figure). Which option represents the correct arrangement of lipids in lipid bilayer ?

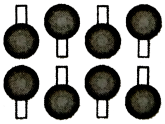


A. (a)



B. (b) 

C. (c) 

D. (d) 

Answer: B

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29. A phospholipid molecule is amphipathic and produce two layers coming in contact with H_2O. The head of phospholipid molecule is

A. at an angle of 40°

B. at the outer surface

C. on the inner side

D. embedded in protein molecules.

Answer: B

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30. Lipids are arranged within the membrane with

A. polar heads towards inner side and the hydrophobic tails toward outerside

B. both heads and tails toward outerside

C. heads toward outerside and tail towards inside

D. both heads and tails towards innerside.

Answer: C

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31. The most abundant lipid in the cell membrane is

A. cutin

B. glycolipid

C. steroid

D. phosphoglycerides.

Answer: D

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32. Which of the best way to separate intact chloroplast from green leaves of angiospermic plant ?

A. Petrol-ether

B. Chloroform

C. 10 % sucrose solution

D. Alcohol

Answer: D

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33. Cell recognition and adhesion are facilitated by components of plasma membrane. These components are generally

A. protein molecules alone

B. lipids alone

C. both lipids and proteins

D. glycolipids and glycoproteins.

Answer: D

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34. Select the incorrect statement regarding the plasma membrane.

A. Ratio of proteins and lipids varies considerably in different cell types.

B. 52 % proteins and 40 % lipids constitute the membrane of human RBC.

C. Arrangement of proteins (P) and Lipids (L) is L-P-P-L.

D. Head of lipid is hydrophilic.

Answer: C

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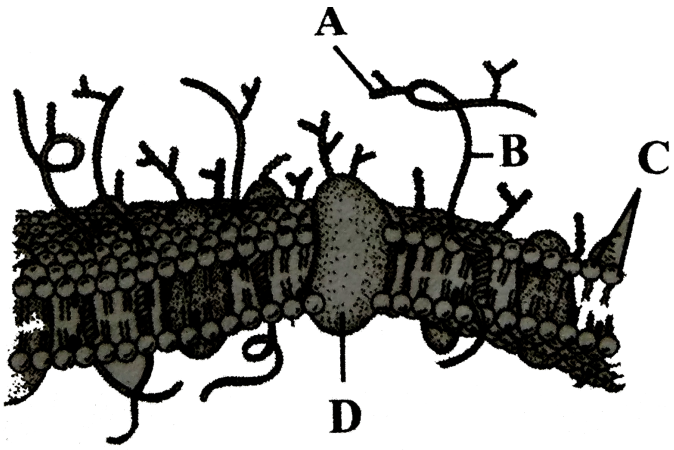
35. Identify the components labelled as A, B, C and D in the given figure of cell membrane from the list (i) to (vii) given along with and select the correct option.



Compounds :

(i) Sugar (ii) Protein

(iii), Lipid bilayer (iv) Integral protein

(v) Cytoplasm (vi) Cell wall

(vii) External protein

The correct matching of components is

A. A-(i), B-(ii), C-(iii), D-(iv)

B. A-(ii), B-(i), C-(iii), D-(iv)

C. A-(i), B-(ii), C-(iii), D-(vi)

D. A-(i), B-(ii), C-(iii), D-(vii)

Answer: A

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36. Integral cell membrane proteins

A. are partially embedded in lipid layers

B. are completely embedded in lipid layers

C. show lateral but not vertical movements within bilayer of lipid

D. All of these

Answer: D

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37. The latest model of cell membrane is the

A. Unit membrane model

B. Fluid mosaic model

C. Danielli and Davson's model

D. Robertson's model.

Answer: B

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38. According to the modern concept, cell membrane is

A. solid

B. quasifluid

C. fluid

D. solidified sheath.

Answer: B

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39. The molecules in the membrane that limit its permeability are the

A. carbohydrates

B. phospholipids

C. proteins

D. water.

Answer: B

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40. Who gave the lamellar or sandwich model of cell membrane ?

A. Singer and Nicolson

B. Danielli and Davson

C. J.Robertson

D. None of these

Answer: B

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41. The fluid mosaic model explains which aspects of a cell membrane ?

A. Only structural aspects

B. Only functional aspects

C. Both structural and functional aspects

D. Only fluidity of membrane

Answer: C

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42. Cell membrane is selective permeable. This means that it

A. allows all materials to pass through

B. allows only water to pass through

C. allows only certain materials to pass through

D. allows only ions to pass through.

Answer: C

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43. Many molecules can move briefly across the membrane without any requirement of energy and special membrane proteins. This is called _____.

A. active transport

B. passive transport

C. facilitated diffusion

D. All of these

Answer: B

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44. Choose the incorrect statement regarding cell membrane.

A. Generally smaller molecules pass easily and readily than large molecules.

B. Water soluble substance pass through it less readily than lipid soluble substances.

C. In addition to phosholipid membrane it also contains cholesterol.

D. None of these

Answer: D

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45. Which of the following is an energy dependent process ?

A. Facilitated diffusion

B. Active transport

C. Endosmosis

D. Exosmosis

Answer: B

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46. The function of intracellular membrane is not to

A. establish a number of compartments within the cell

B. provide for the neat spatial organisation of enzymes and pigments

C. keep the cell rigidity so that it does not collapse

D. provide a system of channel for the distribution of nutrients within the cell.

Answer: C

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47. If you remove the cell wall from a plant cell and place it into a drop of water

A. the cell would begin to grow

B. the cell would shrink

C. the cell would burst

D. nothing would happen.

Answer: C

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48. Continuity of cytoplasm from cell is maintained through cytoplasmic connection in plants called

A. ER

B. tight junction

C. gap junction

D. plasmodesmata.

Answer: D

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49. Dye injected into a plant cell might be able to enter an adjacent cell through

A. microtubule

B. microfilament

C. plasmodesmata

D. tight junction.

Answer: C

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50. Which organelle is not a part of the endomembrane system ?

A. ER

B. Golgi complex

C. Lysosomes

D. Mitochondria

Answer: D

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51. A cell, which is very active in the synthesis and secretion of proteins, would be expected to have

A. equal amount of RER and SER

B. more SER than RER

C. more than SER

D. more Golgi bodies and no ER.

Answer: C

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52. The cell organelle involved in the glycosylation of proteins is

A. ribosome

B. peroxisome

C. mitochondrion

D. endoplasmic reticulum.

Answer: D

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53. _____ isdirectly connected to the outer nuclear membrane.

A. Mitochondria

B. Golgi body

C. ER

D. Chloroplast

Answer: C

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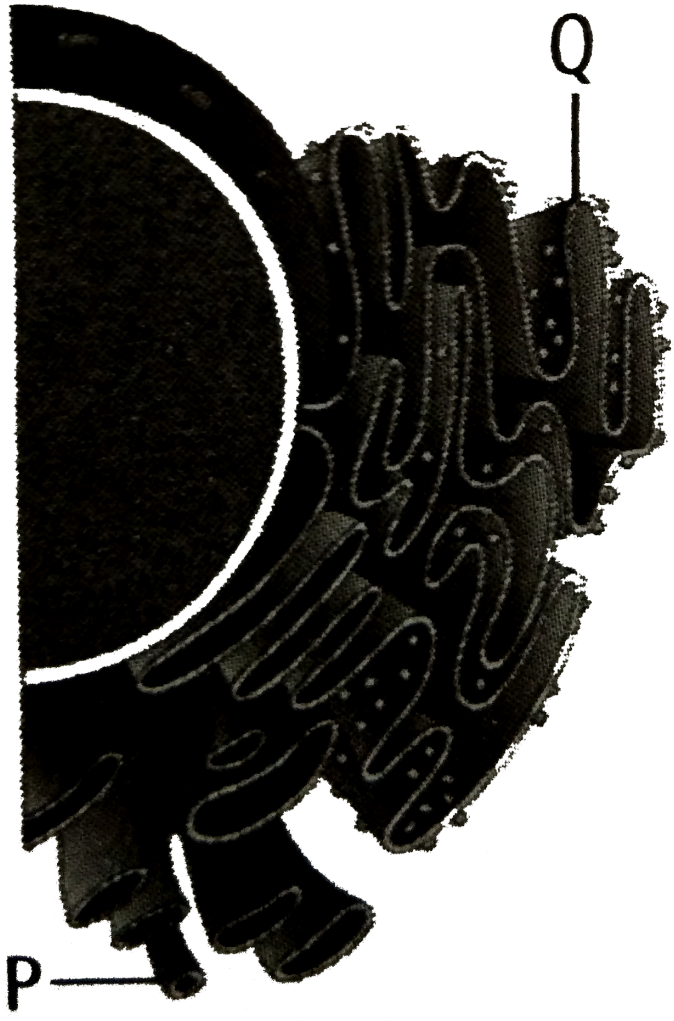
54. P and Q are the major sites for the synthesis of _____, _____ respectively.



A. proteins, lipids

B. lipids, proteins

C. carbohydrates, lipids

D. vitamins, proteins

Answer: B

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55. Mechanical support, enzyme circulation, protein synthesis and detoxification of durgus are the function of

A. dictyosomes

B. chloroplast

C. ribosomes

D. ER.

Answer: D

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56. Smooth endoplasmic recticulum is well developed in the cells which synthesise

A. steroids

B. proteins

C. carbohydrates

D. All of these

Answer: A

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57. Which organelle helps in the synthesis of lipids, chloesterol, steroids and visual pigments in epithelial cells of retina ?

A. Golgi bodies

B. RER

C. SER

D. Mitochondria

Answer: C

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58. Which group of organelles is involved in synthesis of substances needed by cell ?

A. Lysosome, vacuole, ribosome

B. Vacoule, RER, SER

C. Ribosome, RER, SER

D. RER, lysosome, vacuole

Answer: C

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59. Which of the following cell organelles are named after the name of its discoverer ?

A. ER

B. DNA

C. Golgi bodies

D. Mitochondria

Answer: C

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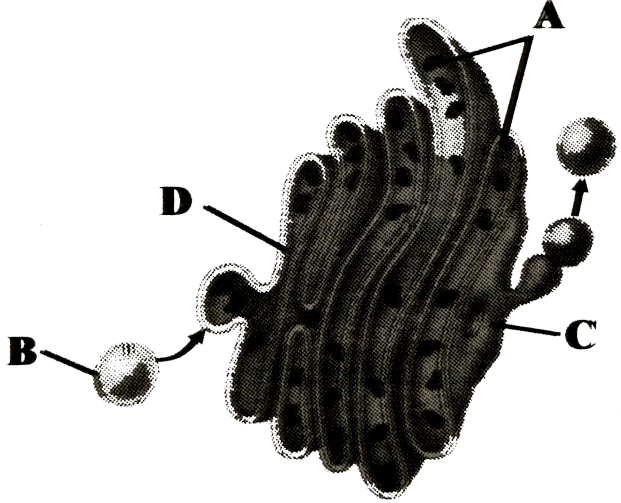
60. Select the option with correct labelling of given structure of Golgi apparatus.



A.

A	B	C	D
Cistemae	Veside	trans face	cis face

B.

A	B	C	D
Cistemae	Veside	cis face	trans face

C.

A	B	C	D
Veside	Cistemae	cis face	trans face

D.

A	B	C	D
Tubules	Veside	trans face	cis face

Answer: A

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61. These are the densely stained reticular stuctures present near the nucleus, consisting of many flat, disc shaped cistemae of $0.5 - 1.0\mu m$

diameter. These are

A. chloroplasts

B. endoplasmic reticulum

C. mitochondria

D. Golgi apparatus

Answer: D

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62. Read the given statements and select the correct option.

Statement 1 : The cistemae in Golgi complex have cis face and trans face.

Statement 2 : The cis face is also called forming face and trans face is also called maturing face.

A. Btoh statements 1 and 2 correct.

B. Statement 1 is correct but statement 2 is 2 is incorrect.

C. Statement 1 is incorrect but statement 2 is correct.

D. Both statements 1 and 2 are incorrect.

Answer: A

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63. Which of the these is not a function of Golgi apparatus ?

A. Site of synthesis of glycoproteins and glycolipids

B. Secrection

C. Membrane transformation

D. Site of protein synthesis

Answer: D

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64. Packing of substances for export from the cell occurs in the

A. SER

B. Golgi bodies

C. lysosome

D. nucleolus.

Answer: B

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65. Cells which are secretory in function have abundant

A. lysosomes

B. endoplasmic reticulum

C. dictyosomes

D. osteosomes.

Answer: C

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66. Which of the following is correct for the origin of lysosome (L) ?

A. ER $\rightarrow$ Golgi bodies $\rightarrow$ L

B. Golgi bodies $\rightarrow$ ER $\rightarrow$ L

C. Nucleus $\rightarrow$ Golgi bodies $\rightarrow$ L

D. Mitochondria $\rightarrow$ ER $\rightarrow$ Golgi bodies $\rightarrow$ L

Answer: A

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67. Lysosmes are _____ vesicular structures formed by the process of packaging in the _____.

A. membrane bound, Golgi apparatus

B. non-membrane bound, Golgi apparatus

C. membrane bound, ER

D. non-membrane bound, ER

Answer: A

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68. Which one of the mis-matched pair ?

A. Largest isolated , single cell - Egg of an ostrich

B. Golgi apparatus - Discovered by Altman

C. Mitochondria - Name was given by Benda

D. Lysosomes - Discovered by de Duve

Answer: B

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69. Lysosomes are the reservoirs (store houses) of

A. hydrolytic enzymes

B. oxidative enzymes

C. secretory glycoproteins

D. RNA and proteins.

Answer: A

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70. Which of the following represents the features of lysosomes ?

A. A lower pH than the cytoplasm

B. Redused hydrolase activity

C. Double membrane envelope

D. All of these

Answer: A

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71. Cell organelle responsible for autolysis is

A. dictyosome

B. lysosome

C. peroxisome

D. glyoxysome

Answer: B

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72. As they release hydrolase that digest old and damaged cells, the term suicide bags is aptly used by cell biologists for

A. Golgi bodies

B. lysosomes

C. glyoxysomes

D. peroxisomes

Answer: B

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73. How does a cell rid itself of defective or malfunctioning organelles ?

A. They are engulfed by plastids and stored until export from cell is possible.

B. Defective parts accumulate until the cell itself dies.

C. They are exported by exocytosis.

D. Lysosomes assist in the removal of defective organelles by digesting them.

Answer: D

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74. 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 cell

A. A-(iii), B-(ii), C-(iv), D-(i)

B. A-(ii), B-(iii), C-(iv), D-(i)

C. A-(i), B-(iii), C-(ii), D-(iv)

D. A-(iv), B-(ii), C-(iii), D-(i)

Answer: A

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75. Which of the following statements regarding sphaerosomes is not correct ?

A. Abundant in the endosperm cells of oil seeds

B. Bounded by a single membrane

C. Take part in synthesis and storage of lipids

D. Take part in photorespiration

Answer: D

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76. 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

A. lysosome

B. vacuole

C. peroxisome

D. mitochondrion.

Answer: B

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77. Who coined the term for the given figure ?

A. Altman

B. Benda

C. de Duve

D. C. Golgi

Answer: B

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78. In which of the following parts of mitochondria succinic dehydrogenase enzyme is located ?

A. Perimitochondrial space

B. Outer membrane

C. Matrix

D. Inner membrane

Answer: D

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79. Which of the following observations most strongly support the view that mitochondria contain transport enzymes aggregated into compact association ?

A. Mitochondria have a highly folded inner wall.

B. Disruption of mitochondria yields membrane fragments, which are able to synthesies ATP.

C. A contractile protein capable of utilising ATP has been obtained from mitochondria.

D. Mitochondria in animal embryos have a tendency to concentrate in cells, which are to become locomotory structures.

Answer: B

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80. Study the following statements regarding mitochondria and select the correct ones.

These are the sites of aerobic respiration.

(ii) Matrix contains single, circular ds DNA molecule, a few RNA molecules, 70S ribosomes.

(iii) Mitochondria divide by fission.

(iv) Mitrochondria are fully-autonomous.

A. (i) and (ii)

B. (iii) and (iv)

C. (i), (ii) and (iii)

D. (i), (ii), (iii) and (iv)

Answer: C

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81. Which of the following statements is incorrect ?

A. Mitochondria, unless specifically stained are not easily visible under the microscope.

B. Physiological activity of cells determines the number of mitochondria per cell.

C. Mitochondrion, a power house of cell has DNA, RNA, ribosomes and enzymes, so it can survive outside the cell.

D. Mitochondria divide by fission.

Answer: C

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82. All plastids have essentially the same structure because

A. they have to perform the same function

B. they are localized in the aerial parts of plants

C. one type of plastid can differentiate into another type of plastid depending upon the cell requirements

D. all plastids have to store starch, lipids and proteins.

Answer: C

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83. Bright colour of petals is due to the presence of

A. chloroplast

B. anthocyanin

C. elaioplast

D. amyloplast.

Answer: B

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84. 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

A. A-(iii), B-(i), C-(ii)

B. A-(iii), B-(ii), C-(i)

C. A-(i), B-(iii), C-(ii)

D. A-(i), B-(ii), C-(iii)

Answer: B

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85. Which of the following is the correct match ?

A. Amyloplasts - Store carbohhydrates

B. Elaioplasts - Store fast and oils

C. Aleuroplasts - Store proteins

D. All of these

Answer: D

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

A. chloroplasts

B. chromoplasts

C. leucoplasts

D. All of these

Answer: C

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87. Select the incorrect pair.

A. Cell wall - Structural support

B. Central vacuole - Storage

C. Amyloplast - Starch storage

D. Plasmodesmata - Protection

Answer: D

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88. 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 codes given above.

A.

Cristate	Cisternae	Thylakoids
(iii)	(i)	(ii)

B. Cristate (i) Cisternae (ii) Thylakoids (iii)

C. Cristate (ii) Cisternae (iii) Thylakoids (i)

D. Cristate (iii) Cisternae (ii) Thylakoids (i)

Answer: C

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89. 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	(iv)	Transport
$D.$	Grana	(iv)	secretion
		(v)	Respiration

A. A (iv) B (v) C (i) D (ii)

B. A (i) B (ii) C (iv) D (iii)

C. A (iv) B (i) C (ii) D (iii)

D.

A	B	C	D
(i)	(ii)	(iii)	(iv)

Answer: A

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

.

A.

A	B
Grana thylakoid	Stroma

B.

A	B
Stroma lamella	Grana

C.

A	B
Granum	Stroma

D.

A	B
Stroma	Granum

Answer: B

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91. In chloroplasts, chlorophyll is presents in the

A. outer membrance

B. inner membrane

C. thylakoids

D. stroma

Answer: C

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92. Extranuclear inheritance is due to the presence of genes in

A. mitochondria and chloroplasts

B. nucleus and mitochondria

C. nucleus and chloroplasts

D. endoplasmic reticulum and mitochondria.

Answer: A

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93. Read the given statements and select the correct option.

Statement 1 : Chloroplast and mitochondria are semiautonomous bondies.

Statement 2 : Chloroplast and mitochondria have their own DNA and protein synthesising machinery.

A. Both statements 1 and 2 are correct.

B. Statement 1 is correct but statement 2 is incorrect.

C. Statement 1 is incorrect but statement 2 is correct.

D. Both statements 1 and 2 are incorrect.

Answer: A

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94. _____ are granular structures first observed under electron microscope as dense particles by _____ (1955).

A. Ribosomes, George Palade

B. Ribosomes, Perner

C. Lysosomes, de Duve

D. Peroxisomes, de Duve

Answer: A

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95. Ribosomes are composed of

A. RNA only

B. Proteins only

C. RNA and proteins

D. RNA, proteins and DNA

Answer: C

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96. Ribosomes of the cytoplasm, chloroplast and mitochondrion are respectively

A. 80S, 80S and 70S

B. 80S, 70S and 70S

C. 70S in all

D. 80S in all.

Answer: B

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

A. These are small structures which work like oars.

B. It is covered with plasma membrane.

C. Its core is called axoneme.

D. All of these

Answer: D

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98. The core of a cilium or flagellum composed of microtublues and their associated proteins is called

A. blepharoplast

B. axoneme

C. microfilament

D. tublin.

Answer: B

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99. An organelle with an internal cross-section showing characteristic "9+2" array is the

A. microtubule

B. microfilament

C. cilium or flagellum

D. cytoskeleton

Answer: C

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

A.

Peripheral Microtubules (doublets)	Central mictotubules (singlets)	Radial spokes	Central sheath
$9+0$	2	8	1

B.

Peripheral Microtubules (doublets)	Central mictotubules (singlets)	Radial spokes	Central sheath
$9+2$	9+0	9	1

C.

Peripheral Microtubules (doublets)	Central mictotubules (singlets)	Radial spokes	Central sheath
9	2	9	1

D.

Peripheral Microtubules (doublets)	Central mictotubules (singlets)	Radial spokes	Central sheath
3	6	9	1

Answer: C

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101. The movement of cilia and flagella is due to the presence of

A. radial spokes

B. central sheath

C. singlet microtubules

D. dyneins.

Answer: D

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102. Arrangement of microtubules in a flagellum and a centriole is respectively

A. 9 + 2 and 9 + 1

B. 9 + 1 and 9 + 0

C. 9 + 0 and 9 + 7

D. 9 + 2 and 9 + 0

Answer: D

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103. Which of the following statements is incorrect for centrioles ?

A. Both the centrioles in centrosome lie perpendicular to each other.

B. Central proteinaceous hub is missing in a centriole.

C. Each centriole has an organisation like that of a cartwheel.

D. Centrosome usually contains 2 cylindrical centrioles.

Answer: B

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

A.

Peripheral microtubules (triplets)	Central microtubules (singlets)	Hub	Spokes	Inter triplet bridge
9	2	1	9	9

B.

Peripheral microtubules (triplets)	Central microtubules (singlets)	Hub	Spokes	Inter triplet bridge
9	2	9	9	9

C.

Peripheral microtubules (triplets)	Central microtubules (singlets)	Hub	Spokes	Inter triplet bridge
9	2	1	2	2

D.

Peripheral microtubules (triplets)	Central microtubules (singlets)	Hub	Spokes	Inter triplet bridge
9	0	1	9	9

Answer: D

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105. Match the cell organelles given in column I with cellular prosesses 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. A B C D
(ii) (i) (iii) (iv)

B. A B C D
(i) (iii) (iv) (ii)

C. A B C D
(i) (iv) (iii) (ii)

D. A B C D
(iv) (iii) (i) (ii)

Answer: A

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106. Select the wrong statement with respect to the structure of a plant cell.

A. Cellulosic cell wall is present inside the cell membrane.

B. Centrioles are usually absent.

C. A large central vacuole is present

D. Golgi apparatus is formed of a number of unconnected units called dictyosomes.

Answer: A

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107. Centrioles arise from

A. pre-existing centrioles

B. de nove

C. nuclear envelope

D. sphaerosome

Answer: A

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108. 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
$D.$	Nucleus		

A.

A	B	C	D
(i)	(ii)	(iii)	(iii)

B.

A	B	C	D
(iii)	(i)	(i)	(ii)

C.

A	B	C	D
(iii)	(ii)	(i)	(iii)

D.

A	B	C	D
(ii)	(iii)	(i)	(iii)

Answer: C

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109. 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. A B C D
(iv) (i) (iii) (ii)

B. A B C D
(i) (ii) (iv) (iii)

C. A B C D
(iv) (i) (ii) (iii)

D. A B C D
(i) (ii) (iii) (iv)

Answer: C

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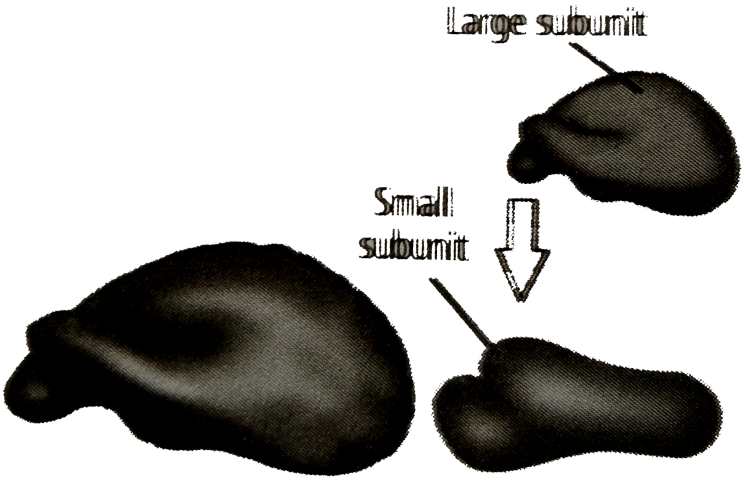
110. In eukaryotic cells, the given figure is synthesised in



A. nucleouls

B. cytoplasm

C. mitochondria

D. Golgi complex.

Answer: A

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111. According top most recent studies, each chromosome consider of

A. single double helical DNA which is higly coiled and folded

B. variable number of DNA helices, depending upon the length of chromosome

C. many small DNA heloces, which are joined by peptide linkages

D. small DNA helices, wrapped around each other like a rope.

Answer: A

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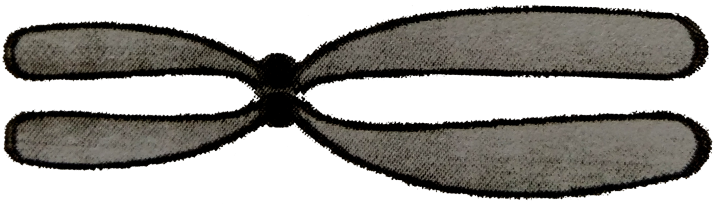
112. Which of the following is correct regarding the given figure ?



	No. of centromere	No. of kinetochore	NO. of arms
A.	2	1	4
B.	1	2	4
C.	2	2	4
D.	1	2	2

Answer: B

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113. The chromosome in which centrometer lies slightly away from the middle of the chromosome resulting into one shorter arm, is called as

A. metacentric

B. submetacentric

C. acrocentric

D. telocentric.

Answer: B

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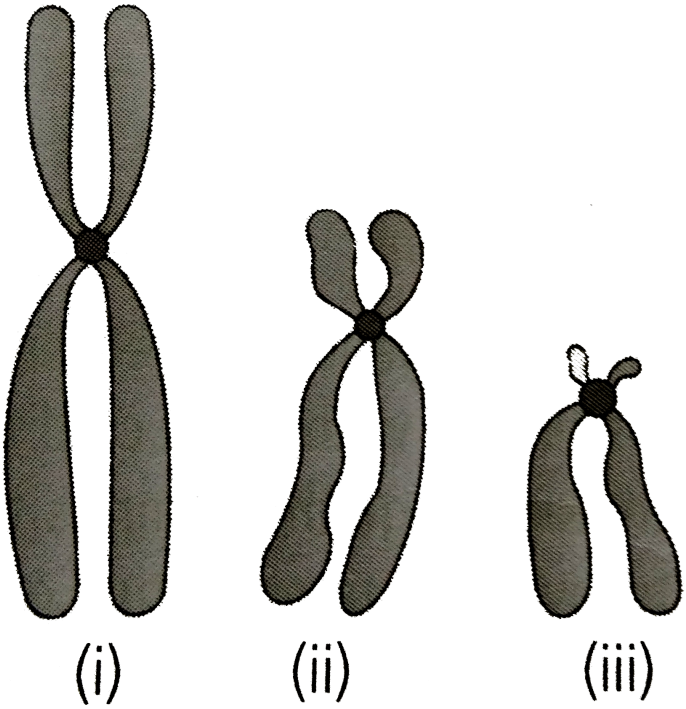
114. Refer to the given figure.



Select the option which correctly identifies (i-iii).

A.	Metacentric (i)	Submetacentric (ii)	Acrocentric (iii)
B.	Metacentric (i)	Submetacentric (iii)	Acrocentric (ii)

C. Metacentric (ii) Submetacentric (i) Acrocentric (iii)

D. Metacentric (ii) Submetacentric (iii) Acrocentric (i)

Answer: A

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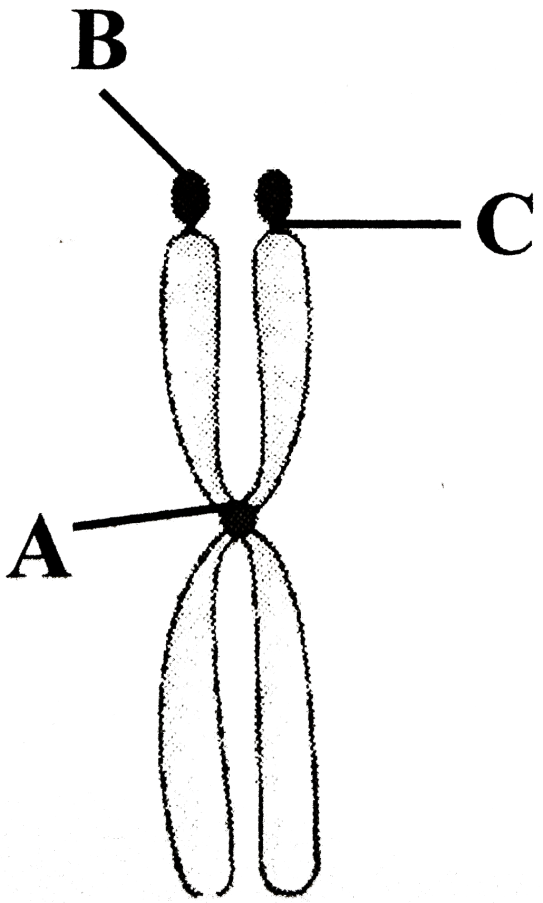
115. What does A, B and C represent in the given figure of a chromosome ?



A.

A	B	C
Centriole	Satellite	Primary constriction

B.

A	B	C
Centriole	Satellite	secondary constriction

C.

A	B	C
Centrometre	Satellite	secondary constriction

D.

A	B	C
Centrometre	Satellite	Primary constriction

Answer: C

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116. Cell organelle extracted from endosperm of germinating castor beans are

A. glyoxysomes

B. vacuoles

C. mitochondria

D. None of these

Answer: A

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117. The function of glyoxysome is

A. protein metabolism

B. carbohydrate metabolism

C. fat metabolism

D. protein synthesis.

Answer: C

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118. Read the given statements and select the correct option.

Statement 1 : Peroxisomes are imnvolved in option-respiration of the plant cells and help in the lipid metabolism of animal cells.

Statement 2 : They are the cell's grabsge disposal system.

A. Both statements 1 and 2 are correct.

B. Statement 1 is correct but statement 2 is incorrect

C. Statement 1 is incorrect but statement 2 is correct.

D. Both statements 1 and 2 are incorrect.

Answer: B

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119. Which one of these is not correct regarding peroxisomes ?

A. Single membrane bound organelles

B. Perform photorespiration in C_3 planes

C. Take part in synthesis and storge of lipids

D. Protect a cell from the toxic effects of H_2O_2

Answer: C

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120. _____ are the microbodies, which take part in glyoxylate pathway, bounded by a single membrane and are usually present in germinating fatty seeds.

A. Glyoxysomes

B. Peroxisomes

C. Spherosome

D. Lysosmes

Answer: A

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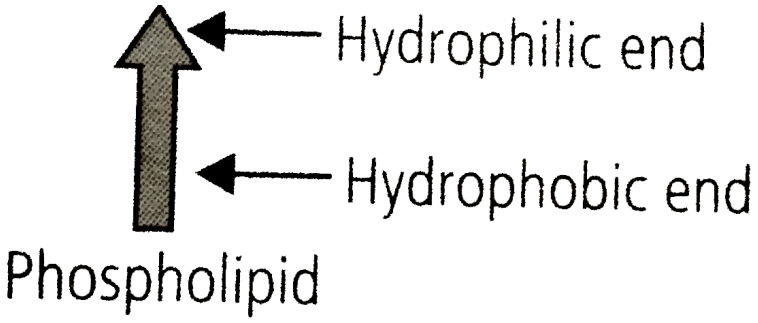
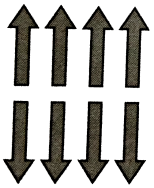
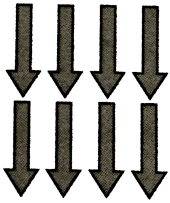
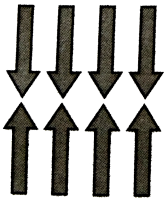
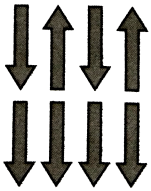
121. A read blood corpuscle (RBC) was kept in a solution and treated so that it became inside-out. What will be the polarity of the phospholipid bilayer in this cell ?



A. (a) 

B. (b) 

C. (c) 

D. (d) 

Answer: A

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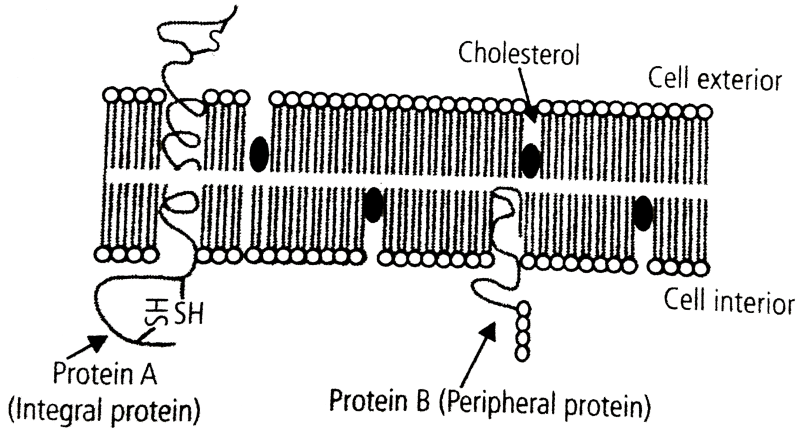
122. A student made a pictorial representation of a eukaryotic cell membrane and labelled the components as follows.



The student has made errors whikle labelling the components membrane. Which of the following hold true regarding the error ?

(i) Protein A should be labelled as trans-membrane protein only and not as integral protein.

(ii) The polarity of the protein A should be reversed because the cytosolic phjase always shows reducing environment.

(iii) Position of cholesterol molecule shouold be close to polar region as it contains a polar group.

(iv) Protein B should be labelled as integral membrane protein and not as peripheral gltcoprotein.

A. (i) and (ii)

B. (iii) and (iv)

C. (ii) and (iii)

D. (i) and (iv)

Answer: B

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123. A Scientist isolated the plasma membranes from some animal cells and put them in a solution of chemicals that stabilised the membranes. When she added a small amount of a salt solution, she discovered that although the stabilising solution had increased. These new proteins in the stabilising solution were probably

A. peripheral proteins

B. integral proteins

C. lipid-anchored proteins

D. trimeric G proteins.

Answer: A

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124. A scientist wanted to genetically engineer a new type of corn plant that could withstand cold temperatures. He decided to try to change the composition of the plant's membrane to lower the temperature of phase transition. Which of the following membrane changes might be expected to improve the cold tolerance of the plants ?

A. Increasing the length of the fatty acyl chains.

B. Eliminating all steroids.

C. Increasing the frequiency of unsaturated fatty acyl chains.

D. Decreasing the frequency of unsaturated fatty acyl chains.

Answer: C

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125. Which of these statements is/are true ?

(i) The surface area avaiable for cellular function in a prokaryotic cell is less than that in a eukaryotic cell.

(ii) The total genome size of a prokayotic cell is always less than that of a eukaryotic cell.

(iii) Unlike eukaryotes, no special respiratory respiratory organelles are found in prokaryotes. Hence they respire at a much lesser rate than eukaryotes.

(iv) Eukaryotic cells show various membrane bound organelles such as chloroplasts and nucles while ribosomes are the only membrane bound organelles found is prokaryotes.

A. (i) and (ii)

B. (iv) only

C. (iii) only

D. (i), (ii) and (iv)

Answer: A

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126. A common characteristic feature of plant sieve tube cells and most of mammalian eryhrocytes is cells and most of mammalian erythrocytes is

A. absence of mitochondria

B. presence of cell wall

C. presence of hemoglobin

D. absence of uncleus.

Answer: D

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127. Select one which is not true for ribosomes.

A. Made of two subunits

B. From polysome

C. May attach to mRNA

D. Have no role in protein synthesis

Answer: D

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128. Which one of these is not a eukaryote ?

A. Euglena

B. Anabaena

C. Spirogyra

D. Agaricus

Answer: B

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129. Which of the following stains is not used for staining chromosomes ?

A. Basic Fuchsin

B. Safranin

C. Methylene green

D. Carmine

Answer: B

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130. Different cells have different sizes. Arrange the following cells in an ascending of their size and select the correct option.

(i) Mycoplasma (ii) Ostrich egg

(iii) Human RBCs (iv) Bacteria

A. $(i) \rightarrow (iv) \rightarrow (iii) \rightarrow (ii)$

B. $(i) \rightarrow (iii) \rightarrow (iv) \rightarrow (ii)$

C. $(ii) \rightarrow (i) \rightarrow (iii) \rightarrow (iv)$

D. $(iii) \rightarrow (ii) \rightarrow (i) \rightarrow (iv)$

Answer: A

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131. Which of the following features is commen to prokaryotes any many eukaryotes ?

A. Chromatin material present

B. Cell wall present

C. Nuclear membrane present

D. Membrane-bound subcellular organells present

Answer: B

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132. Who proposed the fluid mosaic model of plasma membrane ?

A. Camilla Golgi

B. Schleiden and Schwann

C. Singer and Nicolson

D. Robert Brown

Answer: C

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133. Which of the following options is true for a secretory cell ?

A. Glogi apparatus is absent.

B. RER is easily observed in the cell.

C. Only SER is present

D. Secretory geranules are formed in nucles

Answer: B

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134. What is a tonoplast ?

A. Outer membrane of mitochondria

B. Inner membrane of chloroplast

C. Membrane boundry of the vacuole of plant cells

D. Cell membrane of a plant cell

Answer: C

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135. Which of the following is not true for a eukaryotic cell ?

A. cell wall is made up of peptidoglycans.

B. It has 80S typwe of ribosome present in the cytoplasm.

C. Mitochondria contain circular DNA.

D. Membrane bound organelles are present.

Answer: A

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136. Which of the following statements is not true for the cell membrane ?

A. It is preesent oin both plant and animal cells.

B. Lipids are present in it as bilayer .

C. Proteins may be peripheral or integral in it.

D. Carbonhydrates are never found in it.

Answer: D

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137. Plastids differ from mitochondria on the basis of which of the following features ?

A. Presence of two layers of membrane

B. Presence of ribosome

C. Presence of thylakodis

D. Presence of DNA

Answer: C

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138. Which of the following is not a function of cytoskeleton in a cell ?

A. Imntracellular transport

B. Maintenance of cell shape and structure

C. Support of the organells

D. Cell motility

Answer:

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139. The stain used to visualise mitochondria is

A. fast green

B. safranin

C. acetocarmine

D. janus green

Answer: D

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140. Assertion : Rudolf Virchow modified the hypothesis of cell theory given by Schleiden and Schwann.

Reason : Cell theory says that all cells arise from pre-existing cells.

A. If both assertion and reason are true amnd reason is the correct explanation of assertion.

B. If both assertion and reason are true but reason is not the correct explanation of assertion.

C. If assertion is true but reason is false.

D. If both assertion and reason are false.

Answer: B

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141. Assertion : Cells vary greatly in their shape.

Reason : The shape of cell does not depend on the function they perform.

A. If both assertion and reason are true amnd reason is the correct explanation of assertion.

B. If both assertion and reason are true but reason is not the correct explanation of assertion.

C. If assertion is true but reason is false.

D. If both assertion and reason are false.

Answer: C

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142. Assertion : Pili are nonmotile appendages of bacteria.

Reason : Pili take part in conjugation.

A. If both assertion and reason are true amnd reason is the correct explanation of assertion.

B. If both assertion and reason are true but reason is not the correct explanation of assertion.

C. If assertion is true but reason is false.

D. If both assertion and reason are false.

Answer: B

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143. Assertion : The fimbriae are elongated tubular structures made of a special protein.

Reason : The pili are small bristle like fibres sprouting out of the cell.

A. If both assertion and reason are true amnd reason is the correct explanation of assertion.

B. If both assertion and reason are true but reason is not the correct explanation of assertion.

C. If assertion is true but reason is false.

D. If both assertion and reason are false.

Answer: D

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144. Assertion : The cells that have membrane bound organelles are called eukaryotic.

Reason : The cells that lack membrane bound organelles are called prokaryotic.

A. If both assertion and reason are true amnd reason is the correct explanation of assertion.

B. If both assertion and reason are true but reason is not the correct explanation of assertion.

C. If assertion is true but reason is false.

D. If both assertion and reason are false.

Answer: B

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145. Assertion : Peripheral proteins are partially or totally buriend in the membrane.

Reason : Integral proteins lie on the surface of membrane.

A. If both assertion and reason are true amnd reason is the correct explanation of assertion.

B. If both assertion and reason are true but reason is not the correct explanation of assertion.

C. If assertion is true but reason is false.

D. If both assertion and reason are false.

Answer: D

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146. Assertion : the quasifluid nature of lipid enables lateral movement pof proteins within the overall bilayer.

Reason : This ability to move within the membrane is called fluidity and is important for cell growth.

A. If both assertion and reason are true amnd reason is the correct explanation of assertion.

B. If both assertion and reason are true but reason is not the correct explanation of assertion.

C. If assertion is true but reason is false.

D. If both assertion and reason are false.

Answer: B

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147. Assertion : The middle lamella is a layer made up of calcium pectate.

Reason : It holds the different neighouring cells together.

A. If both assertion and reason are true and reason is the correct explanation of assertion.

B. If both assertion and reason are true but reason is not the correct explanation of assertion.

C. If assertion is true but reason is false.

D. If both assertion and reason are false.

Answer: B

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148. Assertion : A plant bursts if placed in water.

Reason : High turgor pressure causes burasting of plant cells.

A. If both assertion and reason are true amnd reason is the correct explanation of assertion.

B. If both assertion and reason are true but reason is not the correct explanation of assertion.

C. If assertion is true but reason is false.

D. If both assertion and reason are false.

Answer: D

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149. Assertion : The endomembrane system includes endoplasmic reticulum (ER), Golgi complex, lysosomes and vacuoles.

Reason : Mitochondria, chloroplast and peroxisomes are not the part of endomembrane system because their functions are coordinated with the same.

A. If both assertion and reason are true amnd reason is the correct explanation of assertion.

B. If both assertion and reason are true but reason is not the correct explanation of assertion.

C. If assertion is true but reason is false.

D. If both assertion and reason are false.

Answer: B

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150. Assertion : The endoplasmic reticulum which lacks ribosomes is called smooth endoplasmic reticulum (SER).

Reason : SER is mainly involved in protein synthesis.

A. If both assertion and reason are true amnd reason is the correct explanation of assertion.

B. If both assertion and reason are true but reason is not the correct explanation of assertion.

C. If assertion is true but reason is false.

D. If both assertion and reason are false.

Answer: C

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151. Assertion : The Golgi apparatus mainly performs the function of packaging materials.

Reason : Materials to be packed in the from of vesicles from the ER fuse with trans face of the Golgi apparatus.

A. If both assertion and reason are true amnd reason is the correct explanation of assertion.

B. If both assertion and reason are true but reason is not the correct explanation of assertion.

C. If assertion is true but reason is false.

D. If both assertion and reason are false.

Answer: C

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152. Assertion : Lysosomes are capable of digesting carbohydrates, proteins, lipids and nucleic acids.

Reason : Lysosomes are rich in hydrolytic enzymes like lipases, proteases and carbohydrase.

A. If both assertion and reason are true amnd reason is the correct explanation of assertion.

B. If both assertion and reason are true but reason is not the correct explanation of assertion.

C. If assertion is true but reason is false.

D. If both assertion and reason are false.

Answer: A

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153. Assertion : Mitochondria are called 'Power houses' of the cell.

Reason : Mitochondria produce cellular energy in the from of ATP.

A. If both assertion and reason are true amnd reason is the correct explanation of assertion.

B. If both assertion and reason are true but reason is not the correct explanation of assertion.

C. If assertion is true but reason is false.

D. If both assertion and reason are false.

Answer: A

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154. Assertion : The content of inner compartment of mitochondria is called matrix.

Reason : The outer membrane forms a number of infoldings called cristae.

A. If both assertion and reason are true amnd reason is the correct explanation of assertion.

B. If both assertion and reason are true but reason is not the correct explanation of assertion.

C. If assertion is true but reason is false.

D. If both assertion and reason are false.

Answer: C

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155. Assertion : The chromoplasts contain fat soluble carotenoid pigments like carotene and xanthophylls etc.

Reason : These pigments given yellow, orange or red colour to some parts of the plant.

A. If both assertion and reason are true amnd reason is the correct explanation of assertion.

B. If both assertion and reason are true but reason is not the correct explanation of assertion.

C. If assertion is true but reason is false.

D. If both assertion and reason are false.

Answer: B

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156. Assertion : Leucoplasts perform photosynthesis.

Reason : Chloroplasts store fast, starch and proteins.

A. If both assertion and reason are true amnd reason is the correct explanation of assertion.

B. If both assertion and reason are true but reason is not the correct explanation of assertion.

C. If assertion is true but reason is false.

D. If both assertion and reason are false.

Answer: D

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157. Assertion : Ribosomes are non-membrane bound organelles found in the prokaryotic cells only.

Reason : Ribosomes are present only only in the cytoplasm.

A. If both assertion and reason are true amnd reason is the correct explanation of assertion.

B. If both assertion and reason are true but reason is not the correct explanation of assertion.

C. If assertion is true but reason is false.

D. If both assertion and reason are false.

Answer: D

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158. Assertion : The arrangement of axonemal microtubules in cilia or flagella is called 9 + 2 array.

Reason : The axoneme usually has nine pairs or doubles of radially arranged peripheral microtubules, and a pair of centrally located microtubules.

A. If both assertion and reason are true amnd reason is the correct explanation of assertion.

B. If both assertion and reason are true but reason is not the correct explanation of assertion.

C. If assertion is true but reason is false.

D. If both assertion and reason are false.

Answer: A

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159. Assertion : The acrocentric chromosome has centromere at the terminal position.

Reason : The metacentric chromosome has centromere slightly away from the middle of the chromosome.

A. If both assertion and reason are true amnd reason is the correct explanation of assertion.

B. If both assertion and reason are true but reason is not the correct explanation of assertion.

C. If assertion is true but reason is false.

D. If both assertion and reason are false.

Answer: D

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