BIOLOGY

BOOKS - PRADEEP BIOLOGY (HINGLISH)

CELL : THE UNIT OF LIFE

Curiosity Questions

1. Define theory of cell lineage.

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2. Why is a cell totipotent ?

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3. In what respect are the prokaryotic cells more versatile than the eukaryotic cells ?

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4. Why do the plants wilt when deficient in water ?

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5. What is symplasm ?

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6. How do biomembranes adapt to low temperature ?

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7. Why is the fluid mosaic model of a biomembrane conisdered better than the lamellar models ?

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8. How do the cardiac muscle fibers in one area of the heart contract together ?

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9. Why don't the freshwater animals take up so much water by osmoiss that they swell up and brust ?

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10. How do certain cancer cells reisst the drugs used to kill them ?

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11. What is an electrogenic pump ? Cite two examples.

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12. How is the cell membrane recycled ?

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13. How does a tadpole of frog lose the tail during its metamorphosis ?

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14. How do the cytoskeletal elements (microtubules, microfilaments) disappear and reappear as per the cell's need ?

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15. Why aren't the poisonous plants poisoned by their own poison ?

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16. Why does the nuclear envelope has pores in it ?

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Notable Question

1. Which is a prokaryote giant ?

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2. What are fibronectins ?

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3. What are lysosomal storage diseases ?

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Ncert Exercises With Answers

1. Which of the following is not correct ?

A. Robert Brown discovered the cell.

B. Scheiden and Schwann formulated the cell theory.

C. Virchow explained that cells are formed from pre-existing cells.

D. A unicellular organism carries out its life activities within a isngle cell.

Answer: A

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2. New cells generate from

A. Bacterial fermentation

B. Regeneration of old cells

C. Pre-existing cells

D. Abiotic materials

Answer: C

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3. Match the following

Column I	Column II
(a) Cristae	(i) Flat membranous sacs in stroma
(b) Cisternae	(ii) Infoldings in mitochondria
(c) Thylakoids	(iii) Disc-shaped sacs in Golgi apparatus

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4. Which of the following is correct ?

A. Cells of all living organisms have a nucleus.

B. Both animal and plant cells have defined cell wall.

C. In prokaryotes, there are no membrane bound organelles.

D. Cells are formed de novo from abiotic materials.

Answer: C

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5. What is a mesosome in a prokaryotic cell? Mention the functions that it performs.

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6. How do neutral solutes move across the plasma membrane? Can the polar molecules also move across it in the same way? If not, then how are these transported across the membrane?

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7. Name two cell-organelles that are double membrane bound. What are the characteristics of these two organelles? State

their functions and draw labelled diagrams of both.

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8. What are the characteristics of prokaryotic cells ?

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9. What was the need for multicellularity ?

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10. Cell is the baiss unit of life. Discuss in brief.

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11. What are nuclear pores ? State their functions.

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12. Both lysosomes and vacuoles are endomembrane structures, yet they differ in terms of their functions. Comment.

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13. Describe : (i) Nucleus (ii) Mitochondria

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14. What is a centromere? How does the position of centromere form the basis of classification of chromosomes. Support your answer with a diagram showing the position of centromere on different types of chromosomes.

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Additional Questions Very Short Answer Questions

1. Who introduced the term 'cell' ?

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2. What is Leeuwenhoek's contribution to biology ?

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3. Who gave the statement 'omnis cellula e cellula' ?

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4. Who discovered the nucleus ?

Watch Video Solution

5. Give the most fundamental concept of cell biology.

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6. Name the scientist who are credited with cell theory.

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7. What is an interphase cell ?

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8. Give an example of the smallest cell.

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9. Mention the largest plant and animal cells.

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10. How many cells occurs in a human being weighing about 60 kg ?

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11. Give two factor that determine cell size.

Watch Video Solution

12. Do large animal have large cells ?

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13. What are prokaryotes ? Give one example.

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14. What are eukaryotes ? Cite a few examples.

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15. What is the control centre of a cell ?

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16. Mention three cell organelles viisble under a light microscope.

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17. Where is a nucleolus found ?

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18. What do DNA and RNA stand for ?

Watch Video Solution

19. What are hormones ?

Watch Video Solution

20. Name the common genetic material.

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21. All biological processes have molecular basis. Is it correct ?

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22. Give the three essential characteristics of the cells.

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23. Name the organisms which have no process comparable to meiosis, gamete formation or true fertilization.

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24. What are the cyanobacteria ?

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25. Prokaryotic cells are haploid. Is it so ?

Watch Video Solution

26. Name a prokaryotic cell without a cell wall.

Watch Video Solution

27. Cell is an open dynamic system. Is it correct ?

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28. Mention any two intracellular compartments.

Watch Video Solution

29. Why are the egg cell usually large in isze ?

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30. Which cells have cell wall around them.

Watch Video Solution

31. Name the major component of the plant cell wall.

Watch Video Solution

32. What are plasmodesmata?

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33. Which cells have well developed SER and which contain abundant RER ?

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34. How does ER arise ?

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35. Name the components of endoplasmic reticulum.

Watch Video Solution

36. Mention the two types of ribosomes.

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37. Which ribosomes produce proteins for export from the cell ?

Watch Video Solution

38. What holds the ribosomes together in a polysome ?

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39. What happens if the Mg^{+} concentration rises above 0.001 M in the hyaloplasm ?

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40. Name three types of elements that from the Golgi apparatus.

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41. Golgi apparatus in plant and invertebrate cells consists of several separate units. What are these called ?

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42. What is the origin of Golgi apparatus.

Watch Video Solution

43. What are lysosomes ?

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44. Name the four types of lysosomes.

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45. From where do lysosomes arise ?

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46. How do sperm lysosomes help in fertilization ?

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47. Where do most of the Krebs cycle enzymes occur in mitochondria ?

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48. Where are ETS coenzymes located in mitochondria ?

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49. Name the components of an oxysome.

Watch Video Solution

50. What are mitoribosomes?

Watch Video Solution

51. Give the role of mitochondria ?

Watch Video Solution

52. Name the enzyme an oxysome represents.

Watch Video Solution

53. What type of DNA do mitochondria have ?

Watch Video Solution

54. Give the type of ribosomes found in the mitochondria.

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55. Give the term used for a pile of thylakoids.

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56. What are phytosystems (quantosomes) ?

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57. What is photophosphorylation ?

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58. What is CO_2 fixation ? Where does it occur ?

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59. Name two semiautonomous cell organelles.

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60. Where is dynein found ?

Watch Video Solution

61. Centrioles arise de novo. Is it so ?

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62. Where is nexin found ?

Watch Video Solution

63. Give the main function of centrioles.

Watch Video Solution

64. What is meant by 9+2 pattern of organisation ?

Watch Video Solution

65. Which are hollow, microtubules or microfilaments ?

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66. Name the membrane which covers the vacuole in plant cell.

Watch Video Solution

67. What is the function of contractile vacuole?

Watch Video Solution

68. Name the main components of an interphase nucleus.

Watch Video Solution

69. Give the role of DNA.

Watch Video Solution

70. What is the source of nuclear envelope ?

Watch Video Solution

71. What is a nucleosome?

Watch Video Solution

72. Which has more DNA and less RNA-euchromatin or heterochromatin ?

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73. Name the animal and plant cells that lose nucleus at maturity.

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74. Who described the nucleus first ?

Watch Video Solution

75. Is the cell wall permeable, semipermeable or impremeable ?

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76. What are ribophorins ?

Watch Video Solution

77. What are palade particles ?

Watch Video Solution

78. Mention the two subunits of 80S ribosomes.

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79. What is main site of rRNA synthesis ?

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80. What is the thickness of plasma membrane ?

Watch Video Solution

81. Who proposed the fluid mosaic model of structure of plasma membrane ?

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82. Where are extrinsic proteins found in the cell membrane ?

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83. What is the location of intrinsic (integral) proteins in the cell membrane.

Watch Video Solution

84. What are tunnel proteins ?

Watch Video Solution

85. Name the cell organelles which are enclosed by multiple of unit membrane.

Watch Video Solution

86. Who gave the unit membrane hypothesis ?

Watch Video Solution

87. What are permeases ?

Watch Video Solution

88. Which microscope shows plasma membrane of a cell ?

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89. Give two alternative names for cell membrane.

Watch Video Solution

90. Name any two types of intercellular junctions.

Watch Video Solution

91. Name any two types of extracellular coats of animal cells.

Watch Video Solution

92. Which cells have cell wall around them.

Watch Video Solution

93. Name the major component of the plant cell wall.

Watch Video Solution

94. What are plasmodesmata?

Watch Video Solution

95. What is middle lamella, explain with diagram ?

Watch Video Solution

96. Name types of integral protein molecules present in the cell membrane.

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97. Give the common terms for pinocytosis, phagocytosis and axocytosis.

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98. Where is glycocalyx found ?

Watch Video Solution

99. What are tonofibrils ?

Watch Video Solution

100. Which cells lack intracellular biomembranes ?

Watch Video Solution

101. Name the direct cytoplasm-to-cytoplasm contacts in animal and plant cells.

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102. What is an osmotically active solution ?

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103. What does the abbreviation RME represent ?

Watch Video Solution

104. Why is the cell membrane not viisble under a light microscope ?

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105. What is the significance of vacuole in a plant cell?

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106. What does 'S' refer in a 70S and 80S ribosome?

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107. Mention a single membrane bound organelle which is rich in hydrolytic enzymes.

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Additional Questions Short Answer Questions

1. What is homeostasis?

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2. Give the scope of cell biology.

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3. In which tissue the cells were first seen and by whom and when ?

Watch Video Solution

4. What is more tentative, hypotheiss or theory ? Who gave the cell theory ?

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5. Cells have a dual role in multicellular organisms'. Explain this statement.

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6. Name certain cells that are dead but still function in the organisms they are part of.

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7. Cells are totipotent. What is meant by this ?

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8. What is the basis for the totipotency of cells ?

Watch Video Solution

9. How do prokaryotic and eukaryotic flagella differ ?

Watch Video Solution

10. How does cytokineiss take place in plant and animal cells ?

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11. What is an embryoid ?

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12. Define the term bioenergetics.

 Watch Video Solution

13. What is the most suitable form of energy in the cells ? Give reason for your answer.

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14. Define transcription.

Watch Video Solution

15. What is meant by the term translation ?

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16. Name the compounds that bind ribosomes to RER, Give their nature also.

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17. make a list of he organelles that function as cytoskeleton.

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18. Name the organelles which act as the cell's circulatory system, protein factories, power houses, disposal units and control centre.

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19. Which cell organelles are enclosed by a single unit membrane and which by a double unit membrane ?

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20. Name the cell organelles without a limiting membrane.

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21. Distinguish between a phagosome, a heterophagosome and an autophagosome.

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22. Which prokaryotic feature are seen in mitochondria ?

Watch Video Solution

23. In which cell organelles you find permeable membrane ?

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24. Name the proteins associated with locomotory and skeletal orgenelles of a cell.

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25. Which four components form the nucleolus of a cell's nucleus ?

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26. How can lysosome harm the organism ?

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27. What is the role of contractile vacuole in protozoans ?

Watch Video Solution

28. Give the role of adhesive sites in mitochondria.

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29. What is a chromatosome ?

Watch Video Solution

30. Which plant cell have primary cell wall only ?

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31. What is desmotubule ?

Watch Video Solution

32. Why do the cancer cells have numerous ribosomes ?

Watch Video Solution

33. What is accretion ?

Watch Video Solution

34. What is protoplast?

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35. Give the main difference between the Danielli and Davson model and Robertson model of molecular structure of cell membrane.

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36. What is the role of receptor protein molecules of cell membrane ?

Watch Video Solution

37. Mention the nature, location and role of permeases.

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38. What could be the result if the biomembranes were permeable ?

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39. Name the materials phagocytosed by the WBCs and macrophages.

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40. In a plant cell, which pressure counters endomosis and which counters the turgor pressure ?

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41. Name a few exchange pumps a cell membrane has.

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42. How do the Danielli-Davson and Robertson models of cell membrane resemble ?

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43. What shows the fluidity of cell membrane ?

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44. In what respect the fluid mosaic theory of cell membrane resembles the lamellar theories ?

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45. Give the main drawbacks of lamellar models of cells membrane.

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46. Observe the relationship between the first two words and then fill in the suitable words in the fourth place :

A. Bacteria : prokaryotes : : Man : .....

B. Organs : organism : : Cells :

C. Cell : plasma membrane : : Vacuole :

D. Photosynthesis : energy : : DNA :

Answer:

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47. Observe the relationship between the first two words and then fill in the suitable words in the fourth place :

A. Centriole : 9 + 0 : : Cilia : .....

B. Mitochondria : cristae : : chloroplast : .....

C. Chloroplast : photosynthesis : : amyloplast : .....

D. Nucleus : light microscope : : ER : .....

Answer:

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48. What are gas vacuoles ? State their functions.

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49. What is the function of polysome ?

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50. Differentiate between Rough Endoplasmic Reticulum (RER) and Smooth Endoplasmic Reticulum (SER).

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51. Define the terms 'cell' and 'cell biology'.

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52. The term 'cell' is a misnomer. Comment on this statement.

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53. What does the cell theory state ?

Watch Video Solution

54. What was the need for the modification of cell theory ?

Watch Video Solution

55. Cell is an open dynamic system. Explain this statement.

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56. How do the prokaryotic DNA and eukaryotic organeller DNA resemble ?

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57. CELL: THE BASIC UNIT OF LIFE

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58. What is the advantage of compartmentalization in a cell ?

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59. Why do the organisms have cells ?

Watch Video Solution

60. What shows that all cells, also all organisms, have a common ancestry ?

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61. Discuss the importance of surface to volume ratio for the cells.

Watch Video Solution

62. How do the closed system differ from the open systems ?

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63. What is tissue culture ? How is it useful in the study of cell biology ?

Watch Video Solution

64. Differentiate between plasma membrane and cell wall.

Watch Video Solution

65. How do smooth ER and rough ER differ ?

Watch Video Solution

66. Give difference between 70 S and 80 S ribosomes.

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67. How are ribosome formed ?

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68. Describe the arrangment of cisternae in the Golgi apparatus.

Watch Video Solution

69. Name and describe the various types of ribosomes.

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70. Write a short note on oxysomes.

Watch Video Solution

71. Mitochondria/plastids are semiautonomous organelles. Explain.

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72. Write a brief account of leucoplasts.

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73. Short note on Cilia and Flagella.

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74. How do centriole and centromere differ ?

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75. Describe the structure of a microtubule.

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76. DIFFERENCE BETWEEN EUCHROMATIN & HETEROCHROMATIN

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77. Describe the structure of a nucleolus.

Watch Video Solution

78. List the functions of nuclear envelope.

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79. Where would the following structures be found in a cell ?

(a) microtubules , (b) thylakoid , (c) $F_0 - F_1$ complex , (d) ribosomes , (e) nucleolus

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80. What are two principle roles of nucleus ? What biomolecule is responsible for the roles ?

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81. What structural and functional characteristics do cilia, flagella and centrioles have in common ?

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82. Which of the following are found exclusively in plant cells, exclusively in animal cells, and in both ?

(i) Nucleus , (ii) Centrosomes , (iii) Golgi bodies , (iv) Leucoplasts , (v) Cell coat.

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83. Give scientific terms for the following :

(a) Cluster of ribosomes in cytoplasm.

(b) Infoldings of inner membrane of mitochondria.

(c) Stacks of thylakoids in chloroplast.

(d) Stalked particles on the inner membrance of mitochondria.

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84. Why don't the lysosomal enzymes destroy the cell's own cytoplasm ?

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85. Where and how are the cell products modified and packaged for transfer to their destinations ?

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86. Why does the nucleus has an envelop around it and why the envelop has pores in it ?

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87. Would you expect the cells that form hair to contain more ribosomes than the cells which store fat ? Why ?

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88. In what respects the mitochondria and plastids resemble the bacteria.

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89. Distinguish between the following - (i) Extrinsic and Intrinsic Proteins , (ii) Pinocytosis and Phagocytosis , (iii) Cell membrane and cell wall.

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90. Explain the unit membrane hypothesis.

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91. Give an account of intercellular junctions.

Watch Video Solution

92. Describe the extracellular coats of animal cells.

Watch Video Solution

93. Write a note on cellular interactions.

Watch Video Solution

94. Explain the process of pinocytosis.

Watch Video Solution

95. Define and describe phagocytosis.

Watch Video Solution

96. Write a note on exocytosis.

Watch Video Solution

97. Give the role of plasma membrane in cellular movements.

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98. What is meant by active transport across a cell membrane ?

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99. How do the cells come together for the formation of tissues during development ?

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100. What materials a cell draws for its requirements and from where ?

Watch Video Solution

101. What is the advantage of semipermeability of plasmalemma to a cell ?

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102. What is a concentration gradient ?

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103. Differentiate between Homologous organs and analogous organs

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104. Match the items listed in column I with the appropriate items from column II.

Column I	Column II
(*i*) Spherical bacteria	(*i*) Contractile vacuole
(*ii*) Stimultating hormones	(*ii*) 70 S ribosomes
(*iii*) A double membrane system	(*iii*) Cocci
(*iv*) Rod-shaped bacteria	(*iv*) Prokaryotic cell
(*v*) Inhibiting hormones	(*v*) Bacilli
(*vi*) A single membrane system	(*vi*) Chalones (depressors)
(*vii*) Animal cell	(*vii*) Exciters
(*viii*) Prokaryotic cell	(*viii*) Eukaryotic cells

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105. Indicate which of the following statements are true (T) or false (F) :

(a) Robert Hooke discovered the nucleus.

(b) Cells are composed of highly independent and randomly interacting components.

(c) Virchow states that cells arise from the preexisting cells.

(d) Intrinsic flow of information is required to maintain entropy.

(e) The ostrich egg is the largest cell known.

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106. (a) Match the items of column I with appropriate items (one or more) of column II :

Column I	Column II
(*i*) Flagella	(*a*) Leucoplasts
(*ii*) Basal bodies	(*b*) Chloroplasts
(*iii*) Photosynthetic pigments	(*c*) 9 + 2 pattern of organization
(*iv*) Plastids	(*d*) Thylakoid membrane
(*v*) Palade particles	(*e*) 9 + 0 pattern of organization
	(*f*) undualating movement
	(*g*) Ribosomes

(b) Match the items of column I with appropriate items (one or more) of column II :

Column I	Column II
(*i*) Intercellular junctions	(*a*) Chitin
(*ii*) Evaginations	(*b*) Pinocytosis
(*iii*) Extracellular coats	(*c*) Desmosomes
(*iv*) Passive transport	(*d*) Interdigitations

) Cell drinking

(*e*) Diffusion
(*f*) Tight bridges
(*g*) Microvilli

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107. Which of the following belong to a distinct category ?

(a) (i) Nucleus (ii) vacuole (iii) cell wall (iv) chloroplast

(b) (i) Nucleus (ii) Nucleoli (iii) centriole (iv) chromosome

(c) (i) Centriole (ii) basal body (iii) flagella (iv) microvilli

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108. What of the following are true (T) or false (F) ?

(a) The plasma membrane has rigid structure.

(b) Membrane are useful for compartmentalisation in cells.

(c) Solid particle are ingested by pinocytosis.

(d) All molecules can pass easily through a biomembrane if they are water soluble.

(e) ATP is required for active transport.

(f) Sodium-potassium pump help to transport Na^+ ions and K^+ ions in both directions across a membrane.

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109. Fill in the blanks with the help of given words below :

Monera, Active, Passive, Glycoprotein, RER, Glycerol, SER, Animal, Plant.

1. Most of the fats (lipids) and steroid hormones are synthesized by ..... In the cell.

2. The movement of neutral solute molecules across cell membrane is a type of ..... process.

3. Golgi body, associated to RER if separated away, will not form ..... .

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110. Discuss briefly the role of nucleolus in the cells actively involved in protein synthesis.

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111. Explain the association of carbohydrate to the plasma membrane and its significance.

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Additional Questions Long Answer Questions

1. Explain the cell principle.

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2. Give a brief history of cell theory.

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3. Explain the flow of information in a cell.

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4. Give important differences between prokaryotic and eukaryotic cells.

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5. Write main differences between plant and animal cells.

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6. Give a labelled figure showing the structure of an animal cell or of a cell as shown by a an electron microscope.

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7. Explain the following terms :

Dedifferentiation, Nucleoid, Prochromosome, Compartmentalisation in a cell

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8. What is meant by a "flow of information" ? What is the difference between extrinsic and intrinsic flow of information ?

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9. Who proposed the cell theory ? Explain the main points of this theory as it stands today.

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10. Give the differences between the unicellular organisms and the multicellular organisms.

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11. List the components (organelles) of a eukaryotic cell and give the main function of each

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12. How do the cell organelles differ from the cell inclusions.

Watch Video Solution

13. Why did the early cell theory need a change in it ?

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14. What feature show that the prokaryotic cells are primitive to the eukaryotic cells ?

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15. Multicellular organisms have better survival chances than their unicellular counterparts. Why ?

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16. Give an account of structure of cell wall.

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17. List the functions of cell wall.

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18. Describe the morphology of endoplasmic reticulum.

Watch Video Solution

19. Discuss the role of ER in a cell.

Watch Video Solution

20. Give an account of the location, structure and function of ribosomes.

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21. Describe the structure of Golgi apparatus.

Watch Video Solution

22. Discuss the function of Golgi apparatus.

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23. Give an account of the structure of mitochondria or plastids.

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24. Describe the ultrastructure of a cilium or flagellum. What do you know about the movements of these organelles ?

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25. Give an account of the ultrastructure of a centriole.

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26. Describe the structure and function of microtubules or microfilaments.

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27. Give a detailed account of nuclear envelop.

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28. Discuss the gross morphology and functions of the nucleus.

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29. Distinguish between -

(a) Cytoplasm and nucleoplasm (b) Chromatin and chromosome (c) Microtubules and microfilament (d) Leucoplasts and chromoplasts (e) Primary wall and secondary wall

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30. State the main functions of the following :

(a) Ribosome, (b) Lysosome, (c) Chromosome, (d) peroxisome.

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31. List the functions of rough and smooth endoplasmic reticulum and Golgi bodies.

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32. Explain the following-

(a) Mitochondrial DNA is not associated with proteins.

(b) Mitochondrial ribosomes resemble those of prokaryotes.

(c) Mitochondria are the site of oxidation. Why don't they get

burnt up ?

(d) Mitochondria are lacking in anaerobic organisms.

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33. Give an account of the plant cell vacuole.

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34. Write a brief note on cell inclusions.

Watch Video Solution

35. Give a brief account of nucleosome and nuclear pore.

Watch Video Solution

36. Describe the functions of three organelles, viz. Golgi bodies, chloroplasts and mitochondria.

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37. Describe the ultrastructure and functions of (a) Nucleus (b) Mitochondrion (c) Plastid

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38. What is the structure of ribosome ?

Watch Video Solution

39. What are the cell inclusions in a prokoryotic cell ?

Watch Video Solution

40. Describe the fluid mosaic model of biomembrane structure.

Watch Video Solution

41. Biomembranes are fluid and dynamic.' Comment on this statement.

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42. Describe the modification of cell membrane.

Watch Video Solution

43. Discuss the functions of cell membrane.

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44. Define the term 'diffusion.' Demonstrate this process through a membrane with an experiment.

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45. What is osmosis ? Demonstrate this process in cells.

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46. ACTIVE TRANSPORT

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47. Tabulate difference between active transport and diffusion.

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48. Diagrammatically represent the movement of metabolite molecules across the cell membrane involving carrier protein and energy.

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49. Give the utility of active transport for the living systems.

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50. Name the two main constituents of the plasma membrane and show how they are arranged by means of a diagram.

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51. Plasmolysis occurs when plant cells are placed in sucrose solution stronger than the cell sap-

(a) what does the word 'stronger' mean in this context ?

(b) sketch the various stages of plasmolysis occurring in a plant cell.

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52. It is a common observation that after a plant is sprayed with a heavy dose of insecticides, yellowish areas appear on the leaves. Investigations show that the cells died. Since the insecticide spray is not poisonous to plants, try to give reasons for the death of the cells.

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53. Why is it believed that food particles taken into Amoeba by phagocytosis remain "outside" the cell until digestion has occurred ? Explain.

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54. Two aqueous solutions, a 3% glucose solution and an 8% glucose solution are separated by a semipermeable membrane- (a) which solution has the greater osmotic pressure ? (b) in which direction will osmosis occur ? (c) which solution will increase in volume ?

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55. Recall that 0.9% NaCl and 5% glucose solution are isotonic to human erthyrocytes . Consider each of the following solutions . Indicate whether it is hypertonic , hypotonic or isotonic . What sort of change will occur when erythrocytes are placed in it ?

(a) 5% NaCl (b) 5% glucose (c) 0.89% NaCl (d) 0.2% glucose (e) 10% glucose (f) 0.2% NaCl

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56. How would you term the following processes ?

(a) Swelling of raisins (dried grapes) in water.

(b) Exchange of gases during respiration.

(c) Intake of fluid through invagination of plasma membrane.

(d) Crenation of erythrocytes.

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57. Why are membranes described as 'proteins in sea of lipids' ? Explain this statement with an example.

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58. Explain the sodium-potassium exchange pump.

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59. Tabulate differences between the physical and biological modes of transport across biomembranes.

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60. "Fluid mosaic model of cell membranes is satisfactory." Comment on this statement.

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61. How can you show that the carrier proteins and enzymes work (function) similarly ?

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62. Tabulate difference between diffusion and osmosis.

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63. (a) Give the advantage of carrier-mediated endocytosis.

(b) Name the various stages of plasmolysis.

(c) How does pinocytosis help maintain cell membrane size ?

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64. What is cell envelope ? Describe its chemical nature.

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65. Fill in the blanks :

(i) The cells of ....., ...and .....have a thick, porous coat, the cell wall, outside the plasma membrane.

(ii) The cell wall is chiefly composed of insoluble polysaccharide called..... which is long.....chain of glucose molecules.

(iii) Primary cell wall shows .....growth as it, gronwn by addition of more wall material within the existing one. Secondary cell wall, however, shows.....growth i.e., growth by addition of new wall material on the exciting one.

(iv) Ribosomes are also termed as .....particles.

(v) A newly formed lysosome contains .....only. it is called the .....lysosome.

(vi) Plant lysosomes are of the three kinds .....and vacuoles.

(vii) .....mitochondrial membrane bears minute regularly spaced lolli pop-shaped particles called .....

(viii) A chloroplast may have 40 to 100 .....in its matrix.

(b) (i) Jonathan Singer and G. Nicoloson , in early 1972, proposed .....for the membrane structure.

(ii) the .....molecules are amphiapathic .i.e, they have both hydrophilic and hydrophobic regions.

(iii) According to fluid mosaic of bio membranes, the latter have two types of proteins .....and .....

(vi) Peripheral proteins include.....proteins which are loosely bound to the membrane surface, often to the exposed parts of the integral proteins.

(v) Integral proteins include.....These are tightly held in place

by strong hydrophilic and hydrophobic interactions or both and the difficult to remove form the membrane.

(vi) Desmosomes are also called.....

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66. Justify the statement, 'Mitochondria are power houses of the cell'.

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Analytical Questions With Answers

1. What are viroids and prions ? Where are they found and what role they play ?

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2. How is cell wall different in composition in fungi and prokaryotes ?

Watch Video Solution

3. What is facilitated transport ? How does it help to transport materials ?

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4. What is electrogenic pump ? Name main electrogenic pump in animal cells and bacteria, fungi and plants.

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5. How do the skeletal elements of a cell differ from our skeletal parts ?

Watch Video Solution

6. How can the exoplasmic surface of a cell membrane be distinguished from the cytoplasmic surface ?

Watch Video Solution

7. What is the advantage of phospholipid bilayer's fluidity ?

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8. Which processes are involved in the recycling of cell membrane ? What is the use of recycling ?

Watch Video Solution

9. Which molecules function as the name tags of cells ? Give their role also.

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10. Given below is the ultrastructure of animal cell

(i) Label the parts marked as 1, 2, 3, 4 and 5.

(ii) Give one major function of each of these parts.

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11. Who coined the term cell ? What did he study ? What was his conclusion ?

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12. (a) Why cell principle is better than cell theory ?

(b) Who gave the cell theory ?

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13. What is the composition of cell wall in prokaryotic cell and eukaryotic plant cell ?

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14. (a) Who proposed the 'fluid mosaic model' of the structure of cell membrane ?

(b) Draw diagram depicting 'fluid mosaic model' of cell membrane structure and label the following :

1. Glycoprotein 2. Tunnel protein 3. Integral protein 4. Peripheral protein.

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15. Name the intercellular junctions which tie the cells firmly and check the movement of materials between them.

(b) Name the intercellular junctions which permit ions and small molecules to pass from cell to cell without leaking into space or gap between them.

(c) Name the intercellular junctions present in plant tissues.

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16. What happens to human RBCs when they are placed in isotonic, hypertonic and hypotonic and hypotonic solutions ?

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17. (a) How would you differentate primary lysosomes, secondary lysosomes, residual bodies and autophagic

(b) From where do lysosomes arise ?

(c) Name three kinds of lysosomes present in plants. What do they contain besides digestive enzymes ?

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18. (a) As far as permeability is concerned what is the status of outer and inner mitochondrial membrane ?

(b) Name the minute, regularly spaced particles present on the inner mitochondrial membrane.

(c) Why are mitochondria called semiautonomus organelles ?

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19. (a) What is a granum (pleural grana) in a chloroplast ? How many grana are there in the matrix of each chloroplast ?

(b) Name the photosynthetic pigments that are present in the thylakoid membrane of chloroplast.

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20. (a) What is meant by cyclosis or cytoplasmic streaming ? Write two functions of it.

(b) What do you mean by phagocytosis and pinocytosis ?

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Practice Questions Multiple Choice Questions

1. Prokaryotic cell does not have

A. Nucleolus

B. Membrane bound organelles

C. Centrioles

D. All of these

Answer: D

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2. When a cell of $2\mu m$ diameter grows to double its diameter, its surface area : volume relationship will

A. It will reduce to half

B. It will remain the same

C. It cannot be determined

D. It will double

Answer: A

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3. A microorganism, when viewed under a compound microscope with an objective lens of 40X and an eye piece of 10X magnification measured 4000 μ in length. The same microorganism when observed under a dissection microscope with a lens of 10X magnification would measure

A. 40 μ

B. 100 μ

C. 10 μ

D. 400 μ

Answer: B

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4. Organelle involved in modification and routing of newly synthesised proteins to their destination is

A. Chloroplast

B. Mitochondria

C. Lysosome

D. Endoplasmic reticulum

Answer: D

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5. Crabohydrates, the most abundant biomlecles on earth, are produced by

A. Some bacteria, algae and green plant cells

B. Fungi, algae and green plant cells

C. All bacteria, fungi and algae

D. Viruses, fungi and bacteria

Answer: D

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6. Chemiosmotic theory of ATP synthesis in the chloroplasts and mitochondria is based on

A. Membrane potential

B. Accumulation of Na ions

C. Accumulation of K^+ ions

D. Proton gradient

Answer: D

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7. Which of the following is the simplest amino acid

A. Alanine

B. Asparagine

C. Glycine

D. Tryosine

Answer: C

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8. Chlorophyll in chloroplasts is located in –

A. Grana

B. Pyrenoid

C. Stroma

D. Both grana and stroma

Answer: A

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9. Quantasomes are present in:

A. Stroma

B. Grana

C. Mitochondria

D. Golgi body

Answer: B

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10. Middle lamella contains

A. Chitin

B. Lignin

C. Pectin

D. Cellulose

Answer: C

Watch Video Solution

11. Centrosome are present

A. In plant cell only

B. In animal cell

C. In both plant and animal cell

D. None of these

Answer: B

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12. ER work for the synthesis of

A. Carbohydrate

B. Protein

C. Photosynthesis

D. ATP

Answer: B

Watch Video Solution

13. Lysosomes contain

A. Hormone

B. Lytic enzyme

C. Hydrolytic enzyme

D. Useful material

Answer: C

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14. Which statement is not correct with reference to mitochondria?

A. They divide in synchrony with cell cycle

B. They contain DNA

C. They contain cristae

D. They store and release chemical energy

Answer: A

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15. Endoplasmic reticulum is in continuation with

A. Golgi body

B. Nuclear wall

C. Mitochondria

D. Cell wall

Answer: B

Watch Video Solution

16. Which of the following amino acids is not optically active

A. Glycine

B. Valine

C. Leucine

D. Isoleucine

Answer: A

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17. Many cells function properly and divide mitotically even though they do not have

A. Plasma membrane

B. Cytoskeleton

C. Mitochondria

D. Plastids

Answer: D

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18. Three of the following statements regarding cell organelles are correct while one is wrong. Which one is wrong.

A. Lysosomes are double membraned vesicles budded off from Golgi apparatus and contain digestive enzymes.

B. Endoplasmic reticulum consists of a network of membranous tubules and help in transport, synthesis and secretion.

C. Leucoplasts are bound by two membranes, lack pigment but contain their own DNA and protein synthesizing machinery.

D. Sphaerosomes are single membrane bound and are associated with synthesis and storage of lipids.

Answer: A

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19. Is which one of the following would you expect to find glyoxysomes

A. Endosperm of wheat

B. Endosperm of castor

C. Palisade cells in leaf

D. Root hairs

Answer: C

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20. According to widely accepted "Fluid mosaic model" cell membranes are semi-fluid, where lipids and integral proteins can diffuse randomly. In recent years, this model has been modified in several repects. In this regard, which of the following statements is incorrect

A. Proteins in cell membranes can travel within the lipid bilayer.

B. Proteins can also undergo flip-flap movements in the lipid bilayer.

C. Proteins can remain confined within certain domains of the membrane.

D. Many proteins remain completely embeded within the lipid bilayer.

Answer: B

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21. In which of the following solutions, volume of a cell increases ?

A. Hypotonic

B. Isotopic

C. Hypertonic

D. Supertonic

Answer: A

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22. Two animal cells are interconnected by

A. Plasmodesmata

B. Cell wall

C. Desmosomes

D. Plasma membrane

Answer: C

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23. Which of the following statements regarding cilia is not correct

A. Cilia contain an outer ring of nine doublet microtubules surrounding two single microtubules.

B. The organized beating of cilia is controlled by fluxes of Ca^{2+} across the membrane.

C. Cilia are hair-like cellular appendages

D. Microtubules of cilia are composed of tubulin

Answer: B

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24. Which of the following statements regarding mitochondrial membrane is NOT correct ?

A. The outer membrane resembles a seive

B. The outer membrane is permeable to all kinds of molecules

C. The enzymes of the electron transfer chain are embeded in the outer membrane

D. The inner membrane is highly convoluted forming a series of infoldings

Answer: C

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25. What is common between chloroplasts, chromoplasts and leucoplasts

A. Presence of pigments

B. Possession of thylakoid and grana

C. Storage of starch, proteins and lipids

D. Ability to multiply by a fission-like process

Answer: D

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26. Assertion : The number of mitochondria in a cell do not correspond to the function of the cell.

Reason : Mitochondria are common to both plant and animal cells.

A. Statement A is correct, B is wrong

B. Statement B is correct, A is wrong

C. Both the statements A and B are correct

D. Both the statements A and B are wrong.

Answer: B

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27. The vacuole is lined by a membrane called

A. Tonoplast

B. Jacket

C. Cell membrane

D. Tonoplasm

Answer: A

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28. The living organisms can be undexceptionally distinguished from the non - living things on the basis of their ability for

A. Interaction with the enviroment and progressive evolution

B. Reproduction

C. Growth and movement

D. Responsiveness to touch

Answer: B

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29. Select the wrong statement from the following :

A. Both chloroplasts and mitochondria have an internal compartment, the thylakoid space bounded by the thylakoid membrane.

B. Both chloroplasts are generally much larger than mitochondria

C. The chloroplasts are generally much larger than mitochondria

D. Both chloroplasts and mitochondria contain an inner and an outer membrane

Answer: A

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30. Which one of the following is not a constituent of cell membrane

A. Glycolipids

B. Proline

C. Phospholipids

D. cholesterol

Answer: B

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31. Lysosomes are found from

A. Endoplasmic reticulum

B. Mitochondria

C. Golgi bodies

D. Both a and c

Answer: C

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32. Nucleolus is the site for the synthesis of

A. Ribosome

B. mRNA

C. tRNA

D. DNA

Answer: A

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33. Which of the following processes requires ATP ?

A. Active process

B. Passive process

C. Both a and b

D. None of these

Answer: A

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34. Plant cell wall consists of

A. Lignin, hemicellulose, protein and lipid

B. Hemicellulose, cellulose, tubulin and lignin

C. Lignin, hemicellulose, pectin and lipid

D. Lignin, hemicellulose, pectin and cellulose.

Answer: D

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35. The term 'cytoplasm' and 'nucleoplasm' were given by

A. Purkinje

B. Strasburger

C. Brown

D. Flemming

Answer: B

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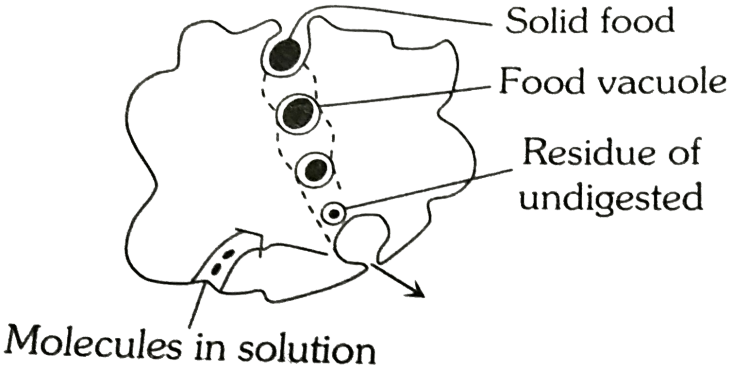
36. In the diagram, which of the following processes are shown in Amoeba



A. Exocytosis

B. Phagocytosis

C. Pinocytosis

D. All of these

Answer: B

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37. Nucleic acid occurs in

A. Golgi body

B. Lysosomes

C. Cytoplasm

D. Mitochondria and chloroplasts

Answer: D

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38. Cristae are associated with which of the following?

A. Mitochondria

B. Cytoplasm

C. Protoplasm

D. Endoplasmic reticulum

Answer: A

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39. A cell placed in solution swells up. The solution is

A. Hypotonic solution

B. Hypertonic solution

C. Isotonic solution

D. Any of these

Answer: A

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40. Which of the following experiment is called physiological demonstration of osmosis

A. Thistle funnel-whose mouth is tied with egg membrane

B. Thistle funnel-whose mouth is tied with parchment

C. Potometer

D. Bell jar experiment

Answer: B

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41. Polysome is formed by

A. A ribosome with several subunits

B. Ribosomes attached to each other in a linear arrangement

C. Several ribosomes attached to a single mRNA

D. Many ribosomes attached to a strand of endoplasmic reticulum.

Answer: C

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42. Cellulose is the major component of cell walls of

A. Pseudomonas

B. Saccharomyces

C. Pythium

D. Xanthomonas

Answer: C

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43. Keeping in view the fluid mosaic model for the stucture of cell membrane, which one of the following statements is correct with respect to the movement of lipids and proteins from one lipid mono layer to the other (described as flip flop movement)

A. While proteins can flipflop, lipids cannot

B. Neither lipids, nor proteins can flipflop

C. Both lipids and proteins can flipflop

D. White lipids can rarely flipflop, proteins cannot

Answer: D

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44. Match the following with correct explanation

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

(*a*) A-5, B-3, C-1, D-4, E-2
(*b*) A-5, B-3, C-2, D-4, E-1
(*c*) A-2, B-3, C-1, D-4, E-5
(*d*) A-3, B-3, C-1, D-5, E-2
(*e*) A-3, B-5, C-1, D-4, E-2

A. A-5, B-3, C-1, D-4, E-2

B. A-5, B-3, C-2, D-4, E-1

C. A-2, B-3, C-1, D-4, E-5

D. A-3, B-3, C-1, D-5, E-2

Answer: A

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45. Read the following statements and identify the correct options given

A. Sap vacuoles-contain digestive enzymes with the help of which nutrients are digested options given

B. Contractile vacuoles - take part in osmoregulations and excretion

C. Food vacuoles - store and concentrate mineral salts as well as nutrients

D. Air vacuoles - store metabolic gases and help in buoyancy of cells

A. A and B are correct

B. A and C are correct

C. B and C are correct

D. B and D are correct

Answer: D

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46. Organelles having enzymes involved in photorespiration are

A. Chloroplast, mitochondrion, glyoxysome

B. Chloroplast, peroxisome, mitochondrion

C. Chloroplast, lysosome, glyoxysome

D. Chloroplast, glyoxysome, mitochondrion

Answer: B

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47. The type of cell juction which facilitates cell to cell communication is

A. Tight junction

B. Adhering junction

C. Gap junction

D. Demosomes

Answer: C

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48. What is the structural element of cell wall

A. matrix

B. microtubules

C. microfibrils

D. arabinoglactane

Answer: D

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49. Small paticles projecting from inner surfaces of cristae and inner mitochondrial membrane are

A. Myeloid bodies

B. Microsomes

C. Informosomes

D. Oxysomes

Answer: D

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50. which statement is incorrect for ion-channels

A. They are proteins

B. Movement through them is simple diffusion

C. Movement through them is from high to low conc.

D. All ions pass through the same type of channel

Answer: D

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51. Primary and secondary active trasnport both

A. Generate ATP

B. use ATP directly

C. Can move solutes against their conc. Gradient

D. Include the passive movement of glucose molecule

Answer: C

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52. Which type of membrane is most abundant withing a cell

A. ER membrane

B. Nuclear membrane

C. Golgi membrane

D. Plasma membrane

Answer: A

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53. Which method of transport in plasma membrane does not require carrier molecule ?

A. Active transport

B. Facilitated diffusion

C. Simple diffusion

D. $Na^+ - K^+$ pump

Answer: C

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54. Which structure is present in both prokaryotic and eukaryotic plant cells

A. Cell wall

B. Nucleus

C. Chloroplast

D. mitochondria

Answer: A

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55. The chemiosmotic coupling hypothesis of oxidative phosphorylation proposes that adenosine triphosphate (ATP) is formed because

A. A proton gradient forms across the inner membrane

B. There is a change in the permeability of the inner mitochondrial mambrane towards adenosine diphosphate (ADP)

C. High energy bonds are formed in mitochondrial proteins

D. ADP is pumped out of the matrix into the intermembrane space

Answer: A

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56. Respiratory enzymes are present in which of the following organells ?

A. Peroxisome

B. Chloroplast

C. Mitochondria

D. Lysosome

Answer: C

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57. Cellular totipotency was first demonstrated by:

A. F.C Steward

B. Robert Hooke

C. T. Schwann

D. A.V. Leeuwenhoek

Answer: A

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58. Axoneme with 9+2 microtubular arrangement occurs in

A. Cilia

B. Flagella

C. Cilia and Flagella

D. Centriole

Answer: C

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59. One of the chief functions of smooth endoplasmic reticulum is

A. Proteins synthesis

B. Lipid synthesis

C. Enzyme production

D. Microtubule production

Answer: B

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60. The cell organelle associated with intercellular digestion of macromolecules is

" " Or

Which is concerned with autolsis

" " Or

One of the cell organelle is said to function as "trigger of cell division"

A. Polysome

B. Peroxisome

C. Glycosome

D. Dictyosome

Answer: A

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61. Identify correct option

a	Chromoplasts–	Contain pigments other than chlorophyll
$b.$	Leucoplasts–	Devoid of any pigment
c	Amyloplasts–	Store proteins
d	ALeuroplasts–	Store oils and fats
e	ELaioplasts–	Store carbohydrates

A. B and C are correct

B. C and D are correct

C. D and E are correct

D. A and B are correct

Answer: D

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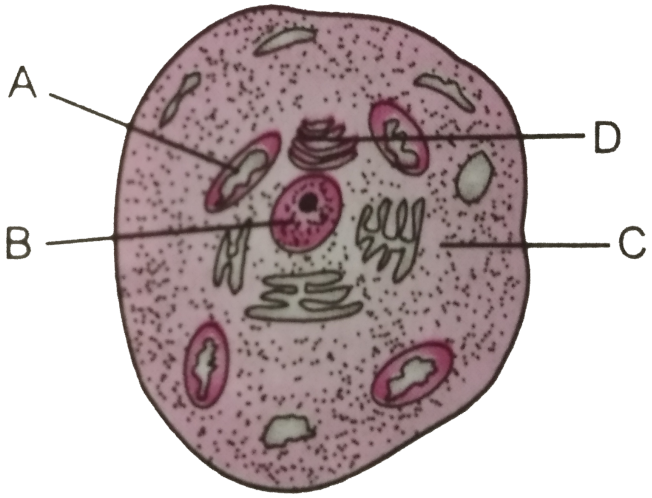
62. The RER in the cell synthesized a protein which would be later used in building the plasma membrane. But it is oberved that the protein in the membrane is slightly different from the protein made in the RER. The protein was probably modified in another cell organelle. Identify that organelle in the given diagram



A. B

B. C

C. D

D. A

Answer: C

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63. During endocytosis,

A. The cell engulfs and internalise materials using its membrane

B. The cell enables the extracellular digestion of large molecules

C. The cell divides its cytoplasm during mitosis

D. The cell digests itself

Answer: A

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64. A cell, when kept in sugar solution, gets dehydrated. Then, the solution is

A. Hypotonic

B. Hypertonic

C. Isotonic

D. None of these

Answer: B

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65. Desmosomes are

A. Connecting bodies between cells

B. Fat storage cells

C. Pigment bodies

D. None of these

Answer: A

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66. Powerhouse of the cell is

A. Golgi body

B. Mitochondria

C. Ribosomes

D. Endoplasmic reticulum

Answer: B

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67. Prokaryotes cells are characterised by

A. Presence of distinct nuclear membrane

B. Absence of chromatin material

C. The presence of distinct chromosome

D. Absence of nuclear membrane

Answer: D

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68. Endoplasmic reticulum is in continuation with

A. Golgi body

B. Nuclear wall

C. Mitochondria

D. Cell wall

Answer: B

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69. Cell wall of bacteria and blue green algae is composed of :

A. Muramic acid

B. Chitin

C. Lipoprotein

D. Glycolipid

Answer: A

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70. Cellular totipotency is demonstrated by

A. Only gymnosperm cell

B. All plant cells

C. All eukaryotic cells

D. Only bacterial cell

Answer: B

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71. Plasmodesmata are

A. Connections between adjacent cells

B. Lignified connected layers between cells

C. Locomotory structures

D. Membranes connecting nucleus with plasmolemma

Answer: A

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72. Middle lamella is mainly composed of

A. Phosphoglycerides

B. Hemicellulose

C. Muramic acid

D. Calcium pectate

Answer: D

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73. Cytoskeleton is made up of

A. Proteinaceous filaments

B. Calcium carbonate granules

C. Callose deposits

D. Cellulosic microfibrils

Answer: A

Watch Video Solution

74. Infectious proteins are presents in

A. Satellite viruses

B. Gemini viruses

C. Prions

D. Viroids

Answer: C

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

A. Absence of mitochondria

B. Presence of cell wall

C. Presence of haemoglobin

D. Absence of nucleus

Answer: A

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76. Select one which is not true for ribosome

A. Made of two sub units

B. Form polysome

C. may attach to mRNA

D. Have no role in protein synthesis

Answer: D

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77. Which one of these is not a eukaryote ?

A. Euglena

B. Anabaena

C. Spirogyra

D. Agaricus

Answer: B

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78. Which of the following dyes is best suited for staining chromosomes

A. Basic fuchsin

B. Safranin

C. Methylene blue

D. Carmine

Answer: D

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79. Different cells have different sizes. Arrange the following cells in an ascending order of their size. Choose the correct option among the followings

i. Mycoplasma, ii. Ostrich eggs

iii. Human RBC, iv. Bacteria

A. I, iv, iii, & ii

B. I, ii, iii, & iv

C. ii, I, iii, & iv

D. iii, ii, I & iv

Answer: A

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80. Which of the following features is common to prokaryotes and many eukaryotes

A. Chromosomes present

B. Cell wall present

C. Nuclear membrane present

D. Sub cellular arganelles present

Answer: B

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

A. Camillo golgi

B. Schleiden and Schwann

C. Singer and Nicolson

D. Robert Brown

Answer: C

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

A. Golgi apparatus is absent

B. Rough endoplasmic reticulum (RER) is easily observed in the cell

C. Only smooth endoplasmic reticulum (SER) is present

D. Secretory granules are formed in nucleus.

Answer: B

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83. 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 plant cell

Answer: C

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84. Which of the following is not true of a eukaryotic cell

A. It has 80 S type of ribosome present in the mitochondria

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

C. Mitochondria contain circular DNA

D. Membrane bound organelles are present

Answer: A

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85. Which of the following statements is not true for plasma membrane

A. It is present in both plant and animal cell

B. Lipid is present as a bilayer in it

C. Proteins are present intergrated as well as loosely associated with the lipid bilayer

D. Carbohydrate is never found in it

Answer: D

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86. Plastid differs from mitochondria on the basis of one of the following features. Mark the right answer

A. Presence of two layers of membrane

B. Presence of ribosome

C. Presence of chlorophyll

D. Presence of DNA

Answer: C

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

A. Interacellular transport

B. Maintenance of cell shape and structure

C. Support of the organelle

D. Cell motility

Answer: A

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88. The stain used to visualise mitochondria is

A. Fast green

B. Safranin

C. Acetocarmine

D. Janus green

Answer: D

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89. The plasma membrane consists mainly of

A. Proteins embeded in a carbohydrate bilayer

B. Phospholipid embeded in a protein bilayer

C. Proteins embeded in a phospholipid bilayer

D. Proteina embeded in a polymer of glucose molecules

Answer: C

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90. Which one of the following structures between two adjacent cells is an effective transport pathway ?

A. Plasmalemma

B. Plasmodesmata

C. Plastoquinones

D. Endoplasmic reticulum

Answer: B

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91. Which one of the following has its own DNA ?

A. Peroxisome

B. Mitochondria

C. Dictyosome

D. Lysosome

Answer: B

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92. The main arena of various types of activities of a cell is

A. Nucleus

B. Plasma membrane

C. Mitochondria

D. Cytoplasm

Answer: D

Watch Video Solution

93. An elaborate network of filamentous protein tubular structures forming skeleton of cell in cytoplasm are

A. Thylakoid

B. Endoplasmic reticulum

C. Plasmalamma

D. Microtubules

Answer: D

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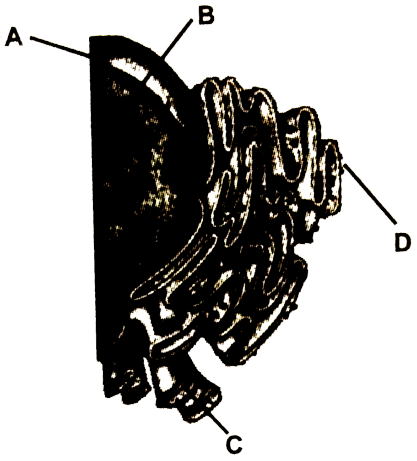
94. Pick the correct matching set.



(A)	Nucleus	(*i*) Synthesis and protein packaging
(B)	Nucleus	(*ii*) Nuclear pores
(C)	Smooth endoplasmic reticulum	(*iii*) Seat of ribosome formation
(D)	Rough endoplasmic reticulum	(*iv*) Endomembrane system with Golgi and nucleus

(*v*) Fat storage
(*vi*) Director of the cell
(*vii*) Detoxification of drugs
(*viii*) Storage house of RNA
(*ix*) Storage of calcium
(*x*) Studded ribosomes
(*xi*) Karyotheca
(*xii*) Without defined membrane

A. (A) - (i), (iv), (x) , (B) - (iii), (viii), (xii) , (C) - (v), (vii), (ix) , (D) - (ii), (vi), (xi)

B. (A) - (ii), (vi), (xi) , (B) - (iii), (viii), (xii) , (C) - (v), (vii), (ix) , (D) - (i), (iv), (x)

C. (A) - (i), (iv), (x) , (B) - (ii), (vi), (xi) , (C) - (v), (vii), (ix) , (D) - (iii), (viii), (xii)

D. (A) - (v), (vii), (ix) , (B) - (iii), (viii), (xii) , (C) - (ii), (vi), (xi) , (D) - (i), (iv), (x)

Answer: B

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95. Compare the statement A and B

Statement A : To counteract the increase in turgor pressure in plant cells, the cell wall produces an equal and opposite pressure, i.e., wall pressure.

Statement B : When plant cells undergo endosmosis, they swell but do not burst.

A. Statement A is wrong and B is correct.

B. Both the statements A and B are correct and A is not the reason for B.

C. Both the statements A and B are correct and A is the reason for B.

D. Statement A is correct and B is wrong.

Answer: C

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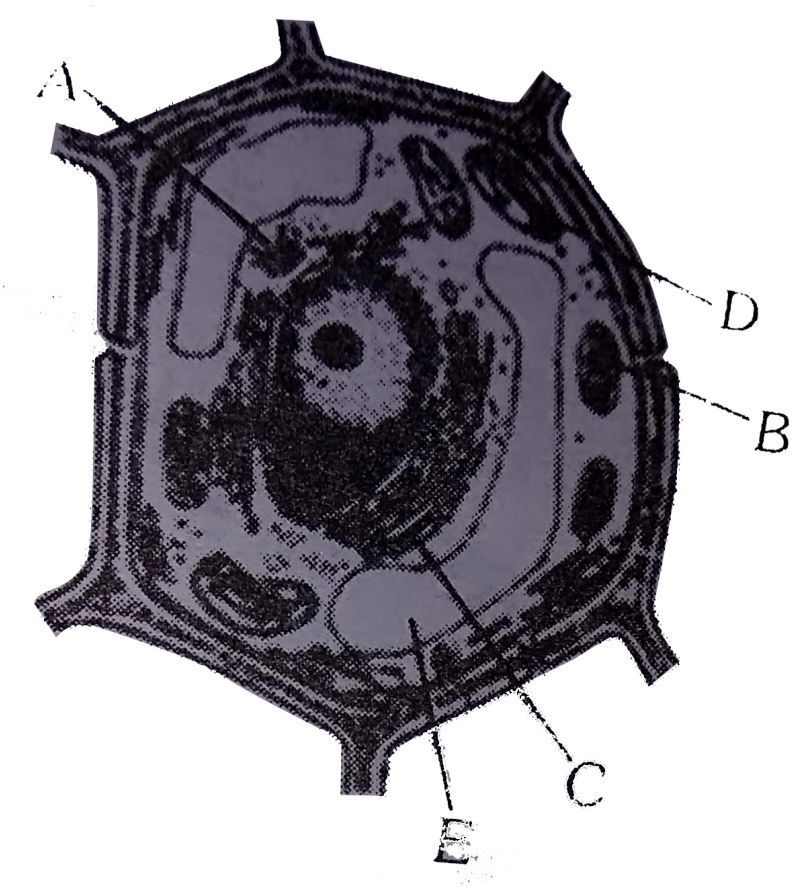
96. The diagram of the ultranstructure of a plant cell is given below. Identify the functions of the organelles labelled.

A,B,C,D,E in the diagram



A. A = Site of photophosphorylation, B = Storage of cell sap, C = Intracellular transport, D = Site of oxidative phosphorylation, E = Principal director of macromolecular traffic.

B. A = Storage of cell sap, B = Site of oxidative phosphorylation, C = Principal director of macromolecular traffic, D = Site of photophosphorylation, E = Intracellular transport.

C. A = Intracellular transport, B = Site of oxidative phosphorylation, C = Principal director of macromolecular traffic, D = Site of photophosphorylation, E = Storage of cell sap.

D. A = Principal director of macromolecular traffic, B = Site of oxidative phosphorylation, C = Intracellular transport, D = Site of photophosphorylation, E = Storage of cell sap.

Answer: D

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97. Thylakoids occur inside

A. Mitochondria

B. Chloroplast

C. Golgi apparatus

D. Endoplasmic reticulum

Answer: B

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98. Mitochondria are semi-autonomous as they possess

A. DNA

B. DNA + RNA

C. DNA + RNA + ribosomes

D. Protein

Answer: C

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99. Which of the cell organelle lack membrane ?

A. Mesosome

B. Mitochondria

C. Ribosomes

D. Liposome

Answer: C

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100. What is mitoplast ?

A. Membraneless mitochondria

B. Another name of mitochondria

C. Mitochondria without outer membrane

D. Mitochondria without inner membrane

Answer: C

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101. Cell theory is not applicable for

A. Bacteria

B. Fungus

C. Algae

D. Virus

Answer: D

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102. Digestive enzyme hydrolases are present in

A. Vacuole

B. Lysosomes

C. Golgi bodies

D. Mitochondria

Answer: B

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103. Na^+ / K^+ pump in a cell is an example of

A. Osmosis

B. Diffusion

C. Passive transport

D. Active transport

Answer: D

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104. Aleuroplasts in a cell store

A. Starch

B. Oil

C. Protein

D. Nutrients

Answer: C

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105. House-keeping proteins occur in

A. ER

B. Golgi complex

C. Cytoskeleton

D. All of these above

Answer: D

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106. The cell membranes of adjacent cells are fused at this cell junction

A. Macula adherens

B. Zonula adherens

C. Zonula occludens

D. Nexus

Answer: C

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107. Number of microtubules in a flagellum including those sharing three protofilaments with each other is

A. 11

B. 20

C. 22

D. 10

Answer: B

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108. Microfilaments in eukaryotic cells are made up of

A. Actin

B. Albumin

C. Globulin

D. Fibrin

Answer: A

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109. Peptide synthesis inside a cell takes place in

A. Chloroplast

B. Mitochondria

C. Chromoplast

D. Ribosomes

Answer: D

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110. What are the structures called that give an appearance as bead-on-string in the chromosomes when viewed under electron microscope ?

A. Genes

B. Nucleotides

C. Nucleosomes

D. Base pairs

Answer: C

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111. In eubacteria, a cellular component that resembles eukaryotic cell is

A. Plasma membrane

B. Nucleus

C. Ribosomes

D. Cell wall

Answer: A

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112. In mitochondria, protons accumulate in the

A. Outer membrane

B. Inner membrane

C. Intermembrane space

D. Matrix

Answer: C

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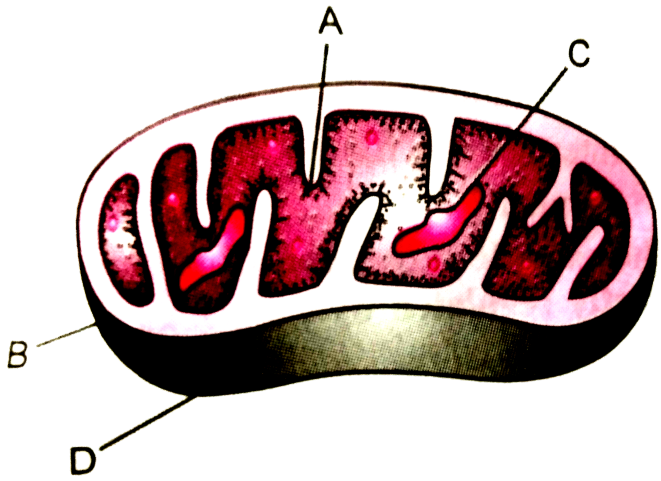
113. The given figure shows the structure of a mitochondrion with its four parts labelled A, B, C and D. Select the part

correctly matched with its function



A. D (outer membrane) - gives rise to inner membrane

B. B (inner membrane) - forms infoldings called cristae

C. C (crista) - Possesses single circular DNA molecule and ribosomes

D. A (matrix) - major site for respiratory chain enzymes

Answer: B

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114. Which one of the following is not considered as a part of the endomembrane system ?

A. Golgi complex

B. Peroxisome

C. Vacuole

D. Lysosome

Answer: B

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115. Important site for formation of glycoproteins and glycolipids is

A. Vacuole

B. Golgi apparatus

C. Plastid

D. Lysosome

Answer: B

Watch Video Solution

116. The cell membranes of adjacent cells are fused at

A. Macula adherens

B. Zonula adherens

C. Zonula occludens

D. Nexus

Answer: C

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117. When the chromosome has a centromere nearer to one end of the chromosome resulting into one shorter and one longer arm, the chromosome is termed as

A. Metacentric

B. Sub-metacentric

C. Acrocentric

D. Telocentric

Answer: B

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118. Detailed structure of the membrane was studied after the advent of electron microscope during

A. 1930's

B. 1950's

C. 1970's

D. 1990's

Answer: B

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119. Plant cells normally lack

A. Ribosome

B. Golgi bodies

C. Centrioles

D. Cell membrane

Answer: C

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120. The usual axonemal arrangement of microtubules is

A. 6 pairs of doublets radially arranged at periphery with a pair of centrally located microtubuled

B. 6 pairs of doublets radially arranged at periphery with a single centrally located microtubule

C. 9 pairs of doublets radially arranged at periphery with a pair of centrally located microtubuled

D. 9 pairs of doublets radially arranged at periphery with a single centrally located microtubule

Answer: C

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121. The chromosomes become gradually visible with compaction of chromatin during the meiotic stage

A. Diplotene

B. Leptotene

C. Zygotene

D. pachytene

Answer: B

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122. Which one of the following does not differ in E. coli and Chlamydomonas

A. Ribosome

B. Chromosomal Organization

C. Cell wall

D. Cell membrane

Answer: D

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123. What is true about ribosomes

A. The prokaryotic ribosomes are 80 S, where "S" stand for sedimentation cofficient

B. These are composed of ribonucleic acid and proteins

C. These are found only in eukaryotic cells

D. These are self-splicing introns of some RNAs.

Answer: B

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124. Select the correct statement from the following regarding cell membrane.

A. Na^+ and K^+ ions move across cell membrane by passive transport

B. Proteins make up 60 to 70 % of the cell membrane

C. Lipids are arranged in a bilayer with polar head towards the inner part.

D. Fluid mosaic model of the cell membrane was proposed by singer and nicolson

Answer: B

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125. Which one of the following cellular parts is correctly described ?

A. Thylakoids - flattened membranous sacs forming the grana of chloroplasts.

B. Centrioles - sites for active RNA synthesis.

C. Ribosomes - those on chloroplasts are larger (80S) while those in the cytoplasm are smaller (70S).

D. Lysosomes - optimally active at a pH of about 8.5.

Answer: A

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126. Which one of the following structures is an organelle within an organelle

" " Or

Which of the following cell organelle lacks DNA and bounding membrane

A. Ribosome

B. Peroxisome

C. ER

D. Mesosome

Answer: B

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127. A major site for synthesis of lipids is

A. SER

B. Symplast

C. Nucleoplasm

D. RER

Answer: A

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128. Which of the following criteria does not pertain to facillatated transport

A. High selectivity

B. Transport saturation

C. Uphill transport

D. Requirement of special membrane proteins

Answer: C

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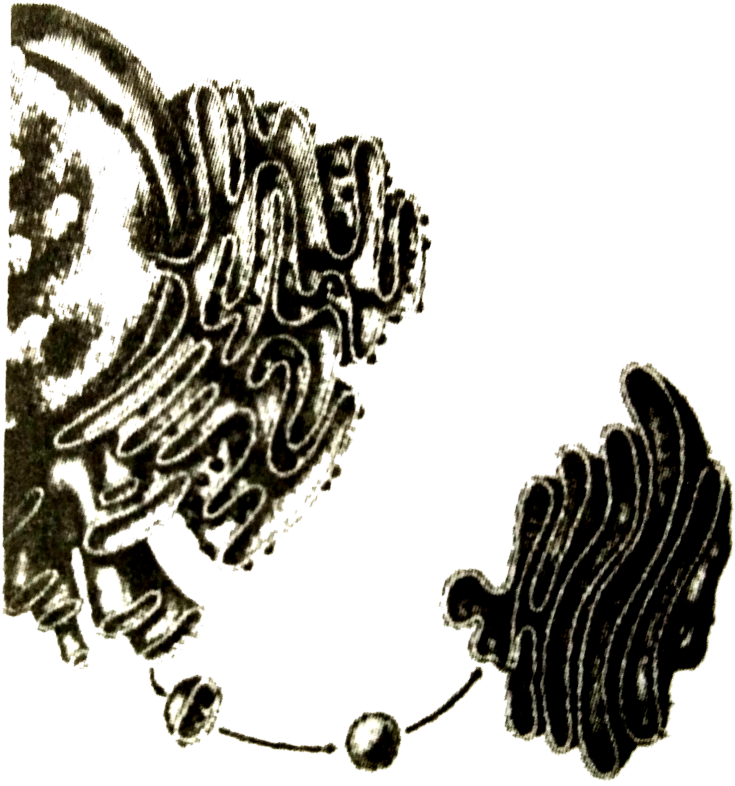
129. Which one of the following organelle in the figure correctly matches with its function ?



A. Golgi apparatus, protein synthesis

B. Golgi apparatus, formation of glycolipids

C. Rough endoplasmic reticulum, protein synthesis

D. Rough endoplasmic reticulum, formation of glycoproteins

Answer: C

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130. The Golgi complex plays a major role

A. In digesting proteins and carbohydrates

B. As energy transferring organelles

C. In post translational modification of proteins and glycosidation of lipids

D. In trapping the light and transforming it into chemical energy

Answer: C

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131. Pigment-containing membranous extensions in some cyanobacteria are

A. Basal bodies

B. Peneumatophores

C. Chromatophores

D. Heterocysts

Answer: C

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132. Which structures perform the function of mitochondria in bacteria ?

A. Nucleoid

B. Ribosomes

C. Cell wall

D. Mesosome

Answer: D

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133. The solid linear cytoskeletal elements having a diameter of 6 nm and made up of a single type of monomer are known as

A. Microtubules

B. Microfilaments

C. Intermediate filaments

D. Lamina

Answer: B

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134. The osmotic expansion of cell kept in water is chiefly regulated by :

A. Mitochondria

B. Vacuoles

C. Plastids

D. Ribosomes

Answer: B

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135. Study the following and select the correct answer :

1. Centriole	(*i*) Infoldings in mitochondria
2. Chlorophyll	(*ii*) Thylakoids
3. Cristae	(*iii*) Nucleic acids
4. Ribozymes	(*iv*) Basal body cilia or flagella

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

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136. Osmosis is a type of

A. Imbibition of solution

B. Diffusion of solvent

C. Evaporation of water

D. Diffusion of solute

Answer: B

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137. Which of the following structures is not found in prokaryotic cells ?

A. Plasma membrane

B. Nuclear envelope

C. Ribosome

D. Mesosome

Answer: B

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138. Which of the following are not membrane bound ?

A. Mesosome

B. Vacuoles

C. Ribosomes

D. Lysosomes

Answer: C

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139. Cellular organelles with membranes are

A. Lysosomes, Glogi apparatus and mitochondria

B. Nuclei, ribosomes and mitochondria

C. Chromosomes, ribosomes and endoplasmic reitculum

D. Endoplasmic reticulum, ribosomes and nuclei

Answer: A

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140. Cell wall is absent in:

A. Nostoc

B. Aspergillus

C. Funaria

D. Mycoplasma

Answer: D

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141. A protoplast is a cell

A. Without division

B. Without plasma membrane

C. Without nucleus

D. Undergoing division

Answer: A

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142. The function of the gap junction is to

A. Stop substance from leaking across a tissue

B. Performing cementing to keep neighbouring cells together

C. Facilitate communication between adjoining cells by connecting the cytoplasm for rapid transfer of ions, small molecules and some large molecules

D. Separate two cells from each other.

Answer: C

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143. Match the columns and identify the correct option

Column -I	Column-II
Thylakoids	(i) Disc-shaped sacs in golgi appartus
Cristae	(ii) Condensed structure of DNA
Cisternae	(iii) Flat membranous sacs in stroma
Chromatin	(iv) Infoldings in mitochondria

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144. if a biochemical analysis of mitochondria is to be done, the best procedure would be to

A. Select cells which have a larger number of mitochondria

B. Plasmolyse the cell and filter out the mixture and take the debris

C. Grind the cells and filter out the mixture and take the debris

D. Subject the cell to cell fractionation (centrifuge) and obtain mitochondria

Answer: D

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145. Which of the following statement is incorrect regarding the band region of polytene chromosome

A. Feulgen negative area

B. Absorb ultraviolet light at 2600Å

C. Chromonemata is tightly packed

D. Stain intensily with basic stain

Answer: A

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146. Which one of the following structures is an organelle within an organelle

" " Or

Which of the following cell organelle lacks DNA and bounding membrane

A. Ribosome

B. Peroxysome

C. ER

D. Mesosome

Answer: A

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147. Mitochondria and chloroplast are

(a) Semi-autonomous organelles

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

Which one of the following options is correct

A. (b) is true cut (a) is false

B. (a) is true but (b) is false

C. Both (a) and (b) are false

D. Both (a) and (b) are correct

Answer: B

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

A. Chloroplasts

B. Lysosomes

C. Nuclei

D. Mitochondria

Answer: B

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149. Select the mismatch :

A. Gas vacuoles - Green bacteria

B. Large central vacuole - Animal cells

C. Protists - Eukaryotes

D. Methanogens - Prokaryotes

Answer: B

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150. A cell organelle containing hydrolytic enzymes is

A. Lysosomes

B. Microsomes

C. Ribosome

D. Mesosome

Answer: A

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151. Which of the following cell organelles is responsible for extracting energy from carbohydrates to form ATP?

A. Ribosome

B. Chloroplast

C. Mitochondrion

D. Lysosome

Answer: C

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152. Which of the following is true for nucleolus ?

A. Larger nucleoli are present in dividing cells

B. It is a membrane-bound structure

C. It takes part in spindle formation

D. It is a site for active ribosomal RNA synthesis

Answer: D

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153. The Golgi complex participates in

A. Fatty acid breakdown

B. Formation of secretory vesicles

C. Respiration in bacteria

D. Activation of amino acid

Answer: B

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154. Which of the following events does not occur in rough endoplasmic reticulum,

A. Protein folding

B. Protein glycosylation

C. Cleavage of signal peptide

D. Phospholipid synthesis

Answer: D

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155. Many ribosomes may associate with a single mRNA to form mutiple copies of a poolypeptide simultaneously. Such strings of ribosomes are termed as

A. Polysome

B. Polyhedral bodies

C. Plastidome

D. Nucleosome

Answer: A

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156. Select the incorrect match.

(a) Lampbrush chromosomes – Diplotene bivalents

(b) Allosomes – Sex chromosomes

(c) Sub-metacentric chromosomes – L-shaped chromosomes

(d) Polytene chromosomes – Oocytes of amphibians

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Practice Questions Assertion Reason

1. Assertion. The viruses are not considered organisms.

Reason. Viruses are merely nucleoprotein particles and lack cytoplasm and metabolic machinery.

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: A

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2. Assertion. Schleiden and Schwann were the first to observe the cells and to put forward cell theory.

Reason. The cell are always living units.

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: D

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3. Assertion. Dead cells also play a role in multicellular organisms.

Reason. Organisms have nonfunctional cells too.

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: C

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4. Assertion. Muscle and nerve cells greatly differ in structure and function.

Reason. They contain different genetic information.

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: C

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5. Assertion. Mitochondria and chloroplasts act as energy transducers in the cells.

Reason. They make biologically useful energy available to the cells.

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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6. Assertion. Prokaryotic cells lack cyclosis in their cytoplasm.

Reason. Eukaryotic cells lack respiratory enzymes in the plasmalemma.

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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7. Assertion.A plant cell does not swell up or burst if placed in a hypotonic solution.

Reason. Rigid cell wall does not let the plant cell expand.

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: A

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8. Assertion. DNA replication occurs throughout the cell cycle in all organisms.

Reason. DNA replication is conservative.

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: D

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9. Assertion. A eukaryotic cell has many membrane-bound organelles in cytoplasm.

Reason. This intracellular compartmentalisation keeps the various chemical reactions occuring in the cell isolated from one another.

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: A

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10. Assertion. Prokaryotic cells lack mitochondria.

Reason. Their plasma membrane bear respiratory enzymes.

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: A

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11. Assertion. Plant cell wall lacks selective permeability.

Reason. It allows free passage of dissolved materials through it.

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: A

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12. Assertion. The primary cell wall grows by intussusception.

Reason. Secondary and tertiary cell wall are laid down by accretion.

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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13. Assertion. Lysosomes help in the process of photorespiration.

Reason. Lysosomes contain basic enzymes.

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: D

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14. Assertion. Mitochondria and chloroplasts are semiautonomous argenelles.

Reason. They contain ribosomes, DNA and RNAs and can synthesize some of their proteins.

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: A

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15. Assertion. Ribosomes and DNA of the chloroplasts resemble those of prokaryotes.

Reason. The same is true of these organelles present in the mitochondria.

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

16. Assertion. Peroxisomes occur in both plant and animal cells.

Reason. They play a role in respiration

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: C

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17. Assertion. An interphase cell has a diplosome near the nucleus.

Reason. Diplosomes is not necessary for the formation of mitotic apparatus.

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

18. Assertion. Nuclear envelope has pores in it.

Reason. Nuclear pores allow exit of ribosomal subunits, mRNA and tRNAs.

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: A

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19. Assertion. A Chromatin fibre is a chain of nucleosomes.

Reason. Glyoxysomes are found in the plant cells only.

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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20. Assertion. Mitochondria are known as the power houses of the cell.

Reason. Mitochondria generate biologically useful energy (ATP) for the cell activities by oxidation of fuel.

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: A

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21. Assertion. Nucleus controls metabolism as well as heredity.

Reason. There is usually a single nucleus in a cell.

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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22. Assertion. Chloroplasts have evolved from blue-green algae.

Reason. Both have similar DNA and ribosomes.

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: A

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23. Assertion. Cyclosis occurs in the eukaryotic cells.

Reason. Cyclosis is lacking in plant cells.

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: C

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24. Assertion. Ribosomes are the only cytoplasmic organelles found in both eukaryotic and prokaryotic cells.

Reason. Ribosomes are cell's protein factories that are essential for cells.

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: A

25. Assertion. Lysosomes are called suicide bags of the cell.

Reason. Lysosomes carry on autolysis (autophagy) in the cell.

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: A

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26. Assertion. In the cells engaged in active secretion, such as pancreatic cells, the RER is well developed.

Reason. Ribosomes attached to the RER are actively engaged in protein synthesis.

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: A

27. Assertion. The cell and the various compartments in it are not totally isolated from the surrounding medium.

Reason. The biomembranes allow the flow of selected materials across them as required from time to time.

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: A

28. Assertion. A cell membrane shows fluid behaviour.

Reason. A membrane is a mosaic or composite of diverse lipids and proteins.

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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29. Assertion. The nuclear envelope acts as an interface between the genetic component of the cell and the cytoplasm. Reason. It thus protects DNA against the mutagenic effect of cytoplasmic enzyme

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

30. Assertion. Histones are basic protein of major importance in packaging of eukaryotic DNA. DNA and histone comprise chromatin forming bulk of eukaryotic chromosome.

Reason. Histones are five major types H_1, H_2A, H_2B, H_3 and H_4.

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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31. Assertion. Lysosomes are organelle in eukaryotic cell that contains digestive enzymes to digest macromolecules.

Reason. Lysosomes are also called phagolysosomes or heterophagosomes or digestive vacuoles.

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: A

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32. Assertion. Fine structure of the objects can be observed by transmission electron microscope (TEM).

Reason. Study of living cells cannot be done through TEM, because of high voltage, which is required to operate it, Kills the cells.

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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33. Assertion. A cell membrane shows fluid behaviour.

Reason. A membrane is a mosaic or composite of diverse lipids and proteins.

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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