CHAPTER

1

The Plant Cell

1. Telome theory was proposed by:
(a) W Fleming (b) Zimmermann
(c) Tejo and Laven (d) None of these

2. The function of nucleolus:
(a) It is the site for assembly of ribosome
(b) Helps in biosynthesis of ribosome
(c) Both A and B
(d) None of these

3. Usually one nucleolus is present in one nucleus, except:
(a) Oocyte of xenopus
(b) Onion cell
(c) Both A and B
(d) None of these

4. ..... ions are supposed to maintain intact organization of nucleus.
(a) Na^{+} (b) Ca^{++}
(c) Mg^{++} (d) None of these

5. The term nucleolus was coined by:
(a) Brown (b) Fontana
(c) Bowman (d) None of these

6. Type of nuclear pore which is found in the plant cell:
(a) Annulated pore (b) Direct pore
(c) Both A and B (d) None of these

7. The shape of nuclear pore:
(a) Circular (b) Rectangular
(c) Octagonal (d) None of these

8. What is the position of nucleus?
(a) In old plant cells nucleus becomes eccentric in position due to enlarged vacuole
(b) Usually it occupies geometric central position in cell
(c) Present in such area of cell where metabolic activity is maximum
(d) All of the above

9. Nucleoplasmic index is equal to:
(a) Volume of cytoplasm/volume of chloroplast
(b) Volume of cytoplasm/volume of nucleus
(c) Volume of nucleus/volume of cytoplasm
(d) None of the above

10. In prokaryotic cell, the nucleus is known as:
(a) Central unit (b) Central mass
(c) Central body (d) None of these

11. What is the chemical composition of xanthophylls?
(a) $C_{41}H_{57}O_2$ (b) $C_{40}H_{55}O_3$
(c) $C_{40}H_{56}O^2$ (d) None of these

12. What is the chemical composition of bacteriochlorophyll?
(a) $C_{56}H_{72}O_6N_4Mg$ (b) $C_{56}H_{74}O_6N_4Mg$
(c) $C_{56}H_{71}O_6N_4Mg$ (d) None of these

Ans.	1. (b)	2. (c)	3. (c)	4. (b)	5. (c)	6. (b)	7. (c)	8. (d)	9. (c)	10. (c)	11. (c)	12. (b)

13. What is the chemical composition of chlorophyll d?
(a) $C_{56}H_{72}O_6N_4Mg$ (b) $C_{54}H_{70}O_6N_4Mg$
(c) $C_{55}H_{71}O_6N_4Mg$ (d) None of these

14. What is the chemical composition of chlorophyll e?
(a) $C_{40}H_{52}O_6N_4Mg$ (b) $C_{37}H_{42}O_5N_4Mg$
(c) $C_{55}H_{32}O_5N_4Mg$ (d) None of these

15. What is the chemical composition of chlorophyll b?
(a) $C_{60}H_{72}O_6N_4Mg$ (b) $C_{55}H_{70}O_6N_4Mg$
(c) $C_{59}H_{72}O_5N_4Mg$ (d) None of these

16. What is the chemical composition of chlorophyll a?
(a) $C_{57}H_{72}O_5N_4Mg$ (b) $C_{56}H_{72}O_5N_4Mg$
(c) $C_{55}H_{70}O_5N_4Mg$ (d) None of these

17. Which of the following type of plastid other than amyloplast also stores starch grain?
(a) Elioplast (b) Chloroplast
(c) Chromoplast (d) None of these

18. Environment enriched with carbon dioxide prevents destruction of chlorophyll molecule. This statement is:
(a) True (b) False
(c) Both (a) and (b) (d) None of these

19. Chlorophyll does not dissolve in water even after prolonged boiling. This statement is:
(a) False (b) True
(c) Both (a) and (b) (d) None of these

20. After careful breaking of cell which of the following organelle remains alive for some time:
(a) Chloroplast (b) Mitochondria
(c) Both (a) and (b) (d) None of these

21. Mitochondria and chloroplast are also called:
(a) Endosymbiont of the cell
(b) Semiautonomous body
(c) Cell within the cell
(d) All of the above

22. Plastidial system carrying the genetic information is called:
(a) Plastogene (b) Chondrogene
(c) Plastidom (d) None of these

23. DNA of mitochondria and chloroplast has:
(a) More AU ratio (b) More GC ratio
(c) More AT ratio (d) None of these

24. Autonomic genomic systems are found in:
(a) Chloroplast (b) Mitochondria
(c) Both (a) and (b) (d) None of these

25. What is the amount of DNA in chloroplast molecule?
(a) 0.8% (b) 0.5%
(c) 0.9% (d) None of these

26. Number of carotenoid molecule/ quantasome:
(a) 150 (b) 100
(c) 50 (d) None of these

27. Number of chlorophyll molecule/ quantasome:
(a) 500–600 (b) 350–450
(c) 230–300 (d) None of these

28. The thickness of quantasome is:
(a) 100Å (b) 185 Å
(c) 155 Å (d) None of these

29. The width of quantasome is:
(a) 100Å (b) 185 Å
(c) 155 Å (d) None of these

30. The length of quantasome is:
(a) 100Å (b) 185 Å
(c) 155 Å (d) None of these

31. What is the molecular weight of quantasome?
(a) 4×10^6 (b) 6×10^6
(c) 2×10^6 (d) None of these

32. What is the functional unit of chloroplast?
(a) Cell (b) Quantasome
(c) Chloroplasts (d) None of these

Ans.	13. (b)	14. (c)	15. (b)	16. (b)	17. (b)	18. (c)	19. (b)	20. (c)	21. (d)	22. (c)	23. (b)
	24. (c)	25. (b)	26. (c)	27. (c)	28. (a)	29. (c)	30. (b)	31. (c)	32. (b)		

33. Thylakoid membrane is supposed to be considered as ..... membrane of chloroplast:
(a) 2nd (b) 3rd
(c) 4th (d) None of these

34. Number of grana per chloroplast is:
(a) 80–90 (b) 100–110
(c) 40–60 (d) None of these

35. The size of each grana:
(a) 0.9–3.7 µm (b) 0.3–2.7 µm
(c) Both (a) and (b) (d) None of these

36. Plastidial DNA was discovered by:
(a) Benda (b) Ris and Plaut
(c) Nass and Nass (d) None of these

37. The inner membrane of chloroplast has:
(a) Low permeable (b) More protein
(c) Both (a) and (b) (d) None of these

38. The outer membrane of chloroplast has:
(a) High permeable (b) Low protein
(c) Both (a) and (b) (d) None of these

39. What is the range of periplastidial space in the chloroplast?
(a) 600–900Å (b) 300–600Å
(c) 100–300Å (d) None of these

40. The diameter of the chloroplast is:
(a) 10–20 µm (b) 5–10 µm
(c) 30–40 µm (d) None of these

41. The shape of chloroplast in chlorella:
(a) Bell shape (b) Ribbon shape
(c) Satellite shape (d) None of these

42. The shape of chloroplast in Ulothrix:
(a) Collar shape (b) C–shape
(c) Girdle shape (d) All of these

43. In spirogyra, the shape of chloroplast:
(a) Satellite shape (b) Bell shape
(c) Ribbon shape (d) None of these

44. Which of the following does not contain DNA?
(a) Nucleus (b) Chloroplast
(c) Mitochondria (d) None of these

45. The term cell was coined by:
(a) N Pringsheim (b) Errera
(c) Haeckel (d) None of these

46. Plastid term was given by:
(a) Schimper (b) Kolliker
(c) Both (a) and (b) (d) None of these

47. Living mitochondria was first observed by:
(a) Lewis and Altman
(b) Lewis and Lewis
(c) Lewis and Nass
(d) None of the above

48. Largest mitochondria is found in:
(a) Spinacia
(b) Oocyte of amphibia
(c) Yeast
(d) None of the above

49. The smallest mitochondria is found in:
(a) Spinacia
(b) Oocyte of amphibia
(c) Yeast
(d) None of the above

50. Stain of mitochondria is:
(a) Genus green B (b) Genus green C
(c) Genus green A (d) None of these

51. The colour of mitochondria is yellow due to the presence of:
(a) Vitamin B_6 (b) Vitamin B_2
(c) Vitamin B_1 (d) None of these

52. Mitochondria is also known as:
(a) Biochemical machine
(b) Power house of the cell
(c) Both (a) and (b)
(d) None of these

53. What is the function of mitochondria?
(a) It performs oxidative phosphorylation
(b) It is the site for cellular respiration
(c) It forms nebenkern
(d) Thermogenesis
(e) Help in cell division
(f) Conservation of energy
(g) All of the above

Ans.	33. (b)	34. (c)	35. (c)	36. (b)	37. (c)	38. (c)	39. (c)	40. (b)	41. (a)	42. (d)	43. (c)
	44. (d)	45. (b)	46. (a)	47. (b)	48. (b)	49. (c)	50. (a)	51. (b)	52. (c)	53. (g)	

54. After fractionation of cell which of the following can be formed?
(a) Mitoplast (b) Microsome
(c) Both (a) and (b) (d) None of these

55. Which of the following can perform oxidative phosphorylation?
(a) Mitoplast (b) Mitochondria
(c) Both (a) and (b) (d) None of these

56. The mitochondria having only inner membrane and matrix is known as:
(a) Mitochondrion (b) Mitoplast
(c) Protoplast (d) None of these

57. In mitochondria what is the amount of DNA?
(a) 0.09 (b) 0.05%
(c) 0.02% (d) None of these

58. Mitochondrial DNA was discovered by:
(a) Lahinger (b) Seekevitz
(c) Nass and Nass (d) None of these

59. ..... gave the term 'mitochondria'.
(a) Went (b) Altman
(c) Benda (d) None of these

60. ..... named mitochondria as 'Fila'.
(a) Fleming (b) Altman
(c) Kolliker (d) None of these

61. ..... observed mitochondria and named it as 'bioplast' and suggested their association with respiration.
(a) Fleming (b) Altman
(c) Kolliker (d) None of these

62. Who discovered mitochondria and named it as sarcosome?
(a) Fleming (b) Altman
(c) Kolliker (d) None of these

63. Which of the following antibiotic can stop protein synthesis on 80 'S' ribosome?
(a) Chloramphenicol
(b) Cyclohexamidin
(c) Both (a) and (b)
(d) None of these

64. Which of the following subunit of ribosomes is attached with the membrane of rough endoplasmic reticulum?
(a) Larger subunit
(b) Smaller subunit
(c) Both (a) and (b)
(d) None of these

65. In 70'S' ribosome what is the amount of r-RNA?
(a) 75% (b) 65%
(c) 45% (d) None of these

66. In 80 'S' ribosome what is the amount of r-RNA?
(a) 75% (b) 65%
(c) 45% (d) None of these

67. 77 'S' ribosome is present in:
(a) Fungal mitochondria
(b) Animal mitochondria
(c) Mammalian mitochondria
(d) None of these

68. 55 'S' ribosome found in:
(a) Fungal mitochondria
(b) Animal mitochondria
(c) Mammalian mitochondria
(d) None of these

69. Ribosome is:
(a) Smallest organelle of the cell
(b) Negatively charged
(c) Membrane less organelle
(d) All of the above

70. Ribosome is also called:
(a) Ribonucleoprotein (RNP) particle
(b) Cell engine
(c) Protein factory
(d) Palade particle
(e) All of the above

71. In plant cell ribosome was discovered by:
(a) Palade
(b) Robinson and Brown
(c) Both
(d) None of these

Ans.	54. (c)	55. (c)	56. (b)	57. (a)	58. (c)	59. (c)	60. (a)	61. (b)	62. (c)	63. (b)	64. (a)
	65. (b)	66. (c)	67. (a)	68. (c)	69. (d)	70. (e)	71. (b)				

72. Function of lysosome is:
(a) Extracellular digestion
(b) Autophagy
(c) Intracellular digestion
(d) All of above

73. Catabolic enzyme is found in:
(a) Mitochondria (b) Lysosome
(c) Both (a) and (b) (d) None of these

74. Enzyme of lysosome is:
(a) Catabolic in nature
(b) Hydrolytic in nature
(c) Both
(d) None of these

75. Oxidative enzyme is found in:
(a) Mitochondria (b) Lysosome
(c) Both (a) and (b) (d) None of these

76. Enzymes of cell acts on:
(a) Basic pH
(b) Neutral pH
(c) Acidic pH
(d) None of these

77. Enzyme of lysosome acts on:
(a) Basic pH (b) Neutral pH
(c) Acidic pH (d) None of these

78. Secondary lysosome is also known as:
(a) Heterophagosome
(b) Heterophagic vacuole
(c) Both (a) and (b)
(d) None of these

79. Lysosome shows polymorphism, this statement is:
(a) False (b) True
(c) Not known (d) None of these

80. Periplasmic space acts as lysosome in:
(a) Eukaryotic cell (b) Prokaryotic cell
(c) Both (a) and (b) (d) None of these

81. Lysosome was discovered by:
(a) W Flemming
(b) De duve
(c) R Altman (d) None of these

82. Desmotucules are found in:
(a) Cytoskeleton
(b) Lasmodesmata
(c) Endoplasmic reticulum
(d) None of these

83. In plant, Golgi bodies are concerned mainly in the formation of:
(a) Tonoplast (b) Cell wall
(c) Plasma membrane
(d) None of these

84. What is function of Golgi body?
(a) It form acrosome of sperm
(b) It perform glycosidation of protein and lipid
(c) It is concerned with condensation, packing, storage, transfer
(d) It is mainly associated with secretion
(e) All of the above

85. Golgi body originated from:
(a) Smooth portion of rough endoplasmic reticulum
(b) Smooth endoplasmic reticulum
(c) Both (a) and (b)
(d) None of these

86. Golgi body shows structural polarity. This statement is:
(a) False (b) True
(c) Not known (d) None of these

87. ..... is the area of cytoplasm around the Golgi body which is devoid of glycogen and organelles like ribosome, mitochondria and plastid.
(a) Zone of condensation
(b) Zone of Golgi
(c) Zone of exclusion
(d) None of these

88. Zone of exclusion is also present around:
(a) Microtubule
(b) Aster
(c) Centriole forming area
(d) Centriole
(e) All of the above

Ans.	72. (d)	73. (c)	74. (c)	75. (a)	76. (b)	77. (c)	78. (c)	79. (b)	80. (b)	81. (b)	82. (b)
	83. (b)	84. (e)	85. (c)	86. (b)	87. (c)	88. (e)					

89. Dictyosomes are found in:
(a) Prokaryote (b) Animal cells
(c) Plant cell (d) None of these

90. Small and scattered form of Golgi body present in most of plant cells is known as:
(a) Lipochondria (b) Golgi body
(c) Dictyosomes (d) None of these

91. Lipochondria termed was given by:
(a) Benda (b) Fillip
(c) Baker (d) None of these

92. Collective name of the Golgi apparatus or Golgi bodies are discovered by:
(a) Dictyosomes (b) Mitochondria
(c) Lipochondria (d) None of these

93. Golgi complex or Golgi apparatus or Golgi bodies are discovered by Camillio Golgi by:
(a) Iron metallic impregnation technique
(b) Sodium metallic impregnation technique
(c) Silver metallic impregnation technique
(d) None of these

94. Endomembrane system or cytoplasmic vacuolar system includes:
(a) Golgi body
(b) Endoplasmic reticulum
(c) Nuclear membrane
(d) All of the above

95. After fractionation of cell which of the following new structures will be formed?
(a) Microblast (b) Microtech
(c) Microsome (d) Microcosm
(e) All of the above

96. What is the function of endoplasmic reticulum?
(a) It helps in intracellular conduction of impulse
(b) It directly forms Golgi body/ complex
(c) It helps in formation of nuclear membrane and cell wall
(d) It indirectly forms lysosome
(e) It helps in intracellular transport of material
(f) It provides increased surface area for increased rate of reaction
(g) It provides endoskeleton to the cell
(h) All of the above

97. Endoplasmic reticulum originated from:
(a) Mitochondria
(b) Chloroplast
(c) Nuclear membrane
(d) All of the above

98. What are the main components of rough endoplasmic reticulum?
(a) Tubule (b) Cisternae
(c) Both (d) None of these

99. What are the main components of smooth endoplasmic reticulum?
(a) Vesicle (b) Tubule
(c) Both (d) None of these

100. The ground phase of the cytoplasm is known as:
(a) Cell-inclusion
(b) Cytosol
(c) Both
(d) None of the above

101. Ergastoplasm is ..... in nature:
(a) Neutral (b) Basophilic
(c) Acidic (d) None of these

102. Endoplasmic reticulum was named and discovered by:
(a) Palade (b) Benda
(c) Porter (d) None of these

103. Pinocytosis was discovered by:
(a) Givindjee (b) Lewis
(c) Nicolson (d) None of these

104. Phagoctyosis was discovered by:
(a) Lewis (b) Metchnikoff
(c) Both (a) and (b) (d) None of these

Ans. 89. (c) 90. (c) 91. (c) 92. (c) 93. (c) 94. (d) 95. (c) 96. (h) 97. (d) 98. (c) 99. (c) 100. (b) 101. (b) 102. (c) 103. (b) 104. (b)

105. Gap junction is also known as:
(a) Macula occludence
(b) Nexus
(c) Both (a) and (b) (d) None of these

106. Intermediary junction is also known as:
(a) Zonula adherence
(b) Terminal bar
(c) Both (a) and (b) (d) None of these

107. Tight junction is also known as:
(a) Zonula adherence
(b) Zonula occludens
(c) Terminal bar
(d) None of the above

108. What is the specialization due to contact of plasma membrane?
(a) Inetrmediary junction
(b) Tight junction
(c) Interdigitation (d) All of the above

109. What is the specialization due to evagination of plasma membrane?
(a) Microvilli (b) Stereocilia
(c) Flagella (d) All of the above

110. Biomembrane is:
(a) Nonliving (b) Living
(c) Both (a) and (b) (d) None of these

111. Which component provides elasticity (or flexibility) to the plasma membrane?
(a) Carbohydrate (b) Protein
(c) Lipid (d) None of these

112. Which component of plasma membrane provides fluidity to the plasma membrane?
(a) Lipid (b) Protein
(c) Both (a) and (b) (d) None of these

113. Which of the following component of plasma membrane is amphiphatic in nature?
(a) Intrinsic protein
(b) Phospholipid
(c) Extrinsic protein
(d) Both (b) and (c)

114. Plasma membrane remains holded primarily by or stability of plasma membrane is due to:
(a) Hydrophobic attraction
(b) Hydrophilic attraction
(c) Covalent bond
(d) None of the above

115. Due to the presence of glycocalyx (or cell coat) the plasma membrane is:
(a) Symmetrical (b) Asymmetrical
(c) Both (a) and (b) (d) None of these

116. Functions of glycocalyx are:
(a) Reorganization of other cells
(b) Antigenesis
(c) As receptor
(d) All of the above

117. Glycocalyx is:
(a) Living (b) Nonliving
(c) Not known (d) None of these

118. Among the following which one is transported most efficiently through plasma membrane?
(a) D–Galactose (b) D–Glucose
(c) D–Mannose
(d) None of these

119. Gramicidin, an ionophore consisting of a linear chain of ..... :
(a) 18 Amino acids
(b) 12 Amino acids
(c) 15 Amino acids (d) None of these

120. Valinomycin, a small cyclic molecule constructed from alternating:
(a) 18 Amino acids
(b) 12 Amino acids
(c) 20 Amino acids
(d) None of these

121. Gramicidin is selective in the ions it transports, the selectively of the gramicidin channel follows the order:
(a) $Li > H^+ > K^+ > Na^+ > Nh_4$
(b) $H^+ > NH_4 > K^+ > Na^+ > Li^+$
(c) $Li^+ > H^+ > NH_4^+ > K^+ > Na^+$
(d) None of the above

Ans. 105. (c) 106. (c) 107. (b) 108. (d) 109. (d) 110. (b) 111. (b) 112. (a) 113. (b) 114. (a) 115. (b) 116. (d) 117. (d) 118. (b) 119. (c) 120. (b) 121. (b)

122. ..... functions as a channel former, creating a fixed transmembrane channel follows the order.
(a) Gramicidin (b) Valinomycin
(c) Both (a) and (b) (d) None of these

123. ..... is a mobile carrier diffusing back and forth through lipid bilayers.
(a) Gramicidin (b) Valinomycin
(c) Both (a) and (b) (d) None of these

124. After membranes have been isolated and purified, their protein composition is determined by extraction with the detergent ..... and fractionating the extracted polypeptide by one- or two-dimensional gel electrophoresis:
(a) KCI
(b) Sodium dodecyl sulfate
(c) Calcium sulfate
(d) None of the above

125. Which of the following lipid is commonly found in biological membranes?
(a) Triglycerides
(b) Monoglycerides
(c) Diglycerides
(d) None of these

126. Which of the following is the cell adhesion molecule?
(a) Integrin (b) Myosin
(c) Keratin (d) Lysine

127. ..... is the most valuable instrument used to study the behavior of the lipid films.
(a) Gel electrophoresis
(b) Langmuir through
(c) Centrifugation of the lipid layer
(d) None of the above

128. Unsaturated fatty acid has lower transition temperature than shorter chain fatty acids, which means that membrane enriched with unsaturated fatty acids ..... fluidity:
(a) Decreased (b) Increased
(c) Remain same (d) None of these

129. Long chain fatty acids have higher transition temperature than shorter chain fatty acids, which means that the membrane enriched with the long chain fatty acids tend to exhibit ..... fluidity.
(a) Decreased (b) Increased
(c) Both (d) None of these

130. Flip-flop movement is also known as:
(a) Transverse diffusion
(b) Lateral diffusion
(c) Both (a) and (b)
(d) None of these

131. Lipid molecule can shift its position by:
(a) Lateral movement
(b) Flip-flop movement
(c) Both (a) and (b)
(d) None of these

132. Intrinsic protein extended throughout the thickness of phospholipid bilayer is known as:
(a) Transmembrane protein
(b) Tunnel protein
(c) Both (a) and (b)
(d) None of these

133. Protein can shift its position ..... in phospholipids bilayers:
(a) Vertically (b) Laterally
(c) Both (a) and (b) (d) None of these

134. "Iceberg of protein in sea of lipid", this statement was made by:
(a) Dixon and Jolly
(b) Singer and Nicholson
(c) Darwin (d) None of these

135. What is the amount of carbohydrate in the plasma membrane?
(a) 1–5% (b) 20–40%
(c) 59–70% (d) None of these

136. What is the amount of protein in the plasma membrane?
(a) 1–5% (b) 20–40%
(c) 59–70% (d) None of these

Ans. 122. (a) 123. (b) 124. (b) 125. (c) 126. (a) 127. (b) 128. (b) 129. (a) 130. (a) 131. (b) 132. (c) 133. (b) 134. (b) 135. (a) 136. (c)

137. What is the % amount of lipid present in the plasma membrane?
(a) 1–5% (b) 20–40%
(c) 59–70% (d) None of these

138. Plasma membrane is made of:
(a) Phospholipid protein and carbohydrate
(b) Phospholipid protein
(c) Lipoprotein
(d) None of the above

139. Receptor mediated endocytosis from plasma membrane requires which one of the following coat protein?
(a) Clathrin (b) Arrestin
(c) Glycophori (d) Adaptin

140. Plant cell walls contain:
(a) Glycosaminoglycan
(b) Pectin (c) Peptidoglycan
(d) Proteoglycan (e) None of these

141. Schleiden believed that new cells are formed by budding off from the:
(a) Nucleus (b) Protoplasm
(c) Cell wall (d) All of the above

142. Strasburger coined the term:
(a) Plastids (b) Nucleoplasm
(c) Cytoplasm (d) None of these

143. It is not possible to see a cell usually without the help of a microscope because:
(a) Most cells are colorless
(b) Resolving power of human eye is 0.1 nm
(c) Cells are mostly < 100 m in size
(d) All of the above

144. The existence of cell membrane was proved by:
(a) Plowe (b) Nageli
(c) Overton (d) None of these

145. Which of the following is a cell organelle?
(a) Microtubule
(b) Plasma membrane
(c) Mitochondrion
(d) Vacuole
(e) None of these

146. Unit-membrane model of cell membrane was proposed by:
(a) Robertson
(b) Danielli-Devson
(c) Singer and Nicolson
(d) None of these

147. The thickness of plasma membrane ranges from:
(a) 5Å–15 Å (b) 15 Å–25 Å
(c) 75 Å–215 Å (d) None of these

148. The term cell membrane was coined by:
(a) Cramer and Nageli
(b) Pfeffer
(c) JQ Plowe (d) None of these

149. The term plasmalemma was coined by:
(a) Cramer and Nageli
(b) Pfeffer
(c) JQ Plowe (d) None of these

150. The term plasma membrane was coined by:
(a) Cramer and Nageli
(b) Pfeffer
(c) JQ Plowe (d) None of these

151. Which of the following has maximum percentage of cellulose?
(a) Jute (b) Cotton
(c) Wood (d) None of these

152. Which of the following is used to isolate the plant cell from its group?
(a) Strong base (b) Lipase
(c) Strong acid (d) None of these

153. Outermost layer of the plant cell wall when the plant cells are in group (attached):
(a) Secondary cell wall
(b) Primary cell wall
(c) Middle lamella
(d) None of the above

Ans. 137. (b) 138. (a) 139. (a) 140. (b) 141. (a) 142. (a) 143. (d) 144. (c) 145. (c) 146. (a) 147. (c) 148. (a) 149. (c) 150. (b) 151. (b) 152. (d) 153. (b)

154. Which of the following characteristic of the plant cell?
(a) Plastid (b) Cell wall
(c) Both (a) and (b) (d) None of these

155. Specific stain for lignin:
(a) Acidic phloroglucin
(b) Phloroglucinol hydrochloride
(c) Both (a) and (b)
(d) None of these

156. Find the missing in the flow chart is given below:

Glucose molecule (hexose)
P = ? ↓
1 Cellulose chain
Q = ? ↓
1 Cellulose micelle
R = ? ↓
1 Cellulose microfibril
S = ? ↓
Cellulose macrofibril

(a) P = 3000 molecule of glucose, enzyme-polymerase, Q = 100 molecule of cellulose chain, enzyme-polymerase, R = 100 molecule of cellulose micelle, enzyme-polymerase, S = 20 molecule of cellulose microfibril, enzyme-polymerase
(b) P = 3000 molecule of glucose, enzyme-polymerase, Q = 100 molecule of cellulose chain, enzyme-polymerase, R = 25 molecule of cellulose micelle, enzyme-polymerase, S = 250 molecule of cellulose microfibril, enzyme-polymerase
(c) P = 3000 molecule of glucose, enzyme-polymerase, Q = 150 molecule of cellulose chain, enzyme-polymerase, R = 55 molecule of cellulose micelle, enzyme-polymerase, S = 250 molecule of cellulose microfibril, enzyme-polymerase
(d) None of the above

157. Middle lamella consists of:
(a) Calcium pectate
(b) Lignin
(c) Cellulose
(d) None of these

158. Continuity of protoplasm through plasmadesmata is called:
(a) Endoplasmic reticulum
(b) Symplast
(c) Intercellular space
(d) None of the above

159. The cell wall outside protoplast constitutes:
(a) Symplast
(b) Phragmoplast
(c) Apoplast
(d) None of these

160. ..... is known as intercom system of plant cells:
(a) Ribosome
(b) Plasmodesmata
(c) Cell wall
(d) None of these

161. The cell wall does not totally (or, completely) isolated (or separate) from the plant cell due to:
(a) Tight junction (b) Interdigitation
(c) Plasmodesmata (d) None of these

162. The concept of cell lineage was given by:
(a) Jensen (b) Schleiden
(c) Schwann (d) None of these

163. On the basis of his own observations, as well as those of others, Schleiden in 1883 proposed that the cell is the structural and functional the unit of life. The idea was a:
(a) Generalization (b) Assumption
(c) Observation
(d) None of these

164. The term metabolism was given by:
(a) Jensen (b) Schleiden
(c) Swanson (d) Schwann

165. Cytoplasm is the part of:
(a) Cell wall (b) Protoplasm
(c) Plastids (d) Nucleus

Ans. 154. (c) 155. (c) 156. (b) 157. (a) 158. (b) 159. (c) 160. (b) 161. (c) 162. (c) 163. (a) 164. (d) 165. (b)

166. Plasmodesmata was discovered by:
(a) Brown (b) Altman
(c) Strasburger (d) None of these

167. On increasing numbers of cell wall the size of lumen of plant cell:
(a) Remains unchanged
(b) Increases (c) Decreases
(d) All of the above

168. What is the nature of protoplasm?
(a) Monophasic crystello colloidal
(b) Polyphasic crystello colloidal
(c) Both A and B (d) None of these

169. In the dry condition ..... is most abundant constituent of protoplasm?
(a) Fat (b) Water
(c) Protein (d) None of these

170. In normal condition ..... is most abundant constituent of protoplasm?
(a) Fat (b) Water
(c) Protein (d) None of these

171. In dry mass of protoplasm, what is the percentage of protein?
(a) 30–40 (b) 50–60
(c) 10–20 (d) None of these

172. In protoplasm, what is the percentage of dry mass?
(a) 30–40 (b) 50–60
(c) 10–20 (d) None of these

173. "Protoplasm is the physical basis of life", this statement was made by:
(a) Reinke (b) Huxley
(c) Both (a) and (b) (d) None of these

174. ..... emphasized the importance of protoplasm.
(a) Von Mohl (b) Huxley
(c) Purkinjee (d) None of these

175. Who gave the term protoplasm?
(a) Von Mohl (b) Huxley
(c) Purkinjee (d) None of these

176. First observed the protoplasm:
(a) Corti (b) Dujardin
(c) Purkinjee (d) None of these

177. Who first highlighted the significance of protoplasm and named as sarcode?
(a) Purkinjee (b) Dujardin
(c) Corti (d) None of these

178. The smallest component of the cell:
(a) Plastid (b) Microfilament
(c) Ribosome (d) None of these

179. In the old plant cell the largest cell component of plant cell is:
(a) Mitochondria (b) Nucleus
(c) Plastid (d) None of these

180. Largest organelle of plant cell is:
(a) Mitochondria (b) Nucleus
(c) Plastid
(d) None of these

181. Organelle of cell remains embedded in:
(a) Deutoplasm
(b) Protoplasm
(c) Metaplasm
(d) All of the above

182. The nonliving part of the cell is known:
(a) Cell inclusion
(b) Ergastic substance
(c) Metaplasm
(d) All of these

183. The term protoplasm was coined by:
(a) Negilli
(b) Hanstein
(c) Both (a) and (b)
(d) None of these

184. What is the exceptional example of animal cell in which outermost covering is nonliving structure?
(a) Sperm of animal
(b) Ovum of female
(c) Hard shell of cledoic egg
(d) None of the above

185. Outermost covering of animal cell:
(a) Nonliving (b) Living
(c) Semi living (d) All of these

Ans. 166. (c) 167. (c) 168. (b) 169. (c) 170. (b) 171. (a) 172. (c) 173. (b) 174. (a) 175. (c) 176. (b) 177. (c) 178. (b) 179. (d) 180. (c) 181. (b) 182. (d) 183. (b) 184. (c) 185. (b)

186. Write the exceptional example of plant in which cell wall is absent and only plasma membrane is outermost covering:
(a) Cilia of zoospore
(b) Gamete of zoospore
(c) Flagella of zoospore
(d) None of the above

187. Outermost covering of plant cell is:
(a) Nonliving (b) Living
(c) Semi living (d) All of these

188. What is the mode of cytokinesis in the plant cell?
(a) Centripetal (b) Centrifugal
(c) Both (a) and (b) (d) None of these

189. "Body of multicellular organism is complete mass of protoplasm which is incompletely subdivided into many small units (as cell) for proper functioning", was proposed by:
(a) Corti (b) O Hertwing
(c) Sachs (d) None of these

190. "All organisms are made of protoplasm". This statement was made by:
(a) Purkinje (b) Max Schultz
(c) HW Mohl (d) None of these

191. Which of the following is the exception of the cell theory?
(a) Rhizopus (B) G algae
(c) Bacteria (d) All of these

192. The first person to see a 'free' cell under the microscope was:
(a) Purkinje (b) N Grew
(c) Robert Hooke (d) None of these

193. Virchow discovered that the cells divide and new cell arise from the pro-existing cells. His discovery:
(a) Resulted in the acceptance of the cell theory
(b) Had no effect on the cell theory
(c) Resulted in the modification of cell theory
(d) None of the above

194. The statement that cells are produced by pre-existing cells was made by:
(a) Virchow (b) Mendel
(c) Palade (d) None of these

195. Extension to cell theory was made by:
(a) Virchow (b) Mendel
(c) Palade (d) None of these

196. What was the main lacking point in cell theory of Schneider and Schwann?
(a) They failed to explain cell wall organization
(b) They failed to explain how the new cell arises
(c) They failed to explain how the cells transport material from inner side of the cells
(d) None of the above

197. Who defined that the cells are membrane enclosed nucleus containing structure?
(a) T Schwann (b) MJ Schneider
(c) Both (a) and (b) (d) None of these

198. "Micrographic" published by Robert Hooke is among the great classics of biology. The chapter ..... of the "Micrographic entitled" of the Schematize or Textured of cork and of the cells and pores of some other such frothy bodies" contains the observation of Robert Hooke on cells.
(a) XVII (b) XVIII
(c) XVI (d) None of these

199. Robert Hooke used the word ..... for the walls separating the chambers (or cells).
(a) Cell wall (b) Diaphragm
(c) Object plate (d) None of these

200. "Animal cell differ from plant cell in the absence of cell wall", this statement was made by:
(a) T Schwann
(b) MJ Schleiden
(c) Both (a) and (b)
(d) None of these

Ans. 186. (b) 187. (a) 188. (b) 189. (c) 190. (b) 191. (d) 192. (d) 193. (c) 194. (a) 195. (a) 196. (b) 197. (a) 198. (b) 199. (b) 200. (a)

201. "All the plants are made up of cells", this theory was coined by:
(a) T Schwann (b) MJ Schneider
(c) Both (a) and (b) (d) None of these

202. Well-defined nucleus is found in:
(a) Bacteria (b) Cyanobacteria
(c) Eukaryotes (d) Prokaryotes

203. Book "The Cell" was written by:
(a) Benda (b) R Altman
(c) CP Swanson (d) None of these

204. Father of modern cytology is:
(a) Benda (b) R Altman
(c) CP Swanson (d) None of these

205. Plant cell differs form animal cell is having:
(a) Cytoskeleton (b) Ribosome
(c) Cell wall (d) None of these

206. The idea of individuality of cells was expressed by:
(a) Dujardin (b) Dutrochet
(c) Schwann (d) Corti

207. What Robert Hooke had discovered in the thin section of the cork as a cell was really:
(a) Cell walls (b) Protoplasm
(c) Cellulose (d) Nuclei

208. The figure of the cork cells as seen by Robert Hooke was published in his book.
(a) Origin of species
(b) Genera Plantarum
(c) Micrographia
(d) None of the above

209. Robert Hooke:
(a) Lived in the 17 century
(b) Discovered the cork cells
(c) Constructed a microscope
(d) Invented the lens

210. The term cell was first of all used by:
(a) Hopkins
(b) Flemming
(c) Harvey
(d) None of these

211. The branch of botany dealing with the internal structure of cell and its functions is called:
(a) Cytology (b) Cell biology
(c) Both (a) and (b) (d) None of these

212. Cell doctrine was given by:
(a) Leeuwenhoek
(b) Singer and Nicolson
(c) Both (a) and (b)
(d) None of these

213. Angstrom, the unit of measurement transmission electron microscopy is equal to:
(a) 0.0001 µm (b) 0.001 µm
(c) 0.01 µm (d) None of these

214. One angstrom unit is equal to:
(a) 10^{-9} cm (b) 10^{-8} cm
(c) 10^{-7} cm (d) 10^{-6} cm

215. ..... is a cell organelle among the following.
(a) Mitochondrion
(b) Plasma membrane
(c) Vacuole (d) Microtubule

216. Unit–Membrane model of cell membrane was proposed by:
(a) Danielli-Devson
(b) Singe and Nicolson
(c) Robertson (d) All of the above

217. Fluid–Mosaic model of cell membrane was proposed by:
(a) Danielli-Devson
(b) Singe and Nicolson
(c) Robertson (d) All of the above

218. Middle lamella chiefly consists of:
(a) Mucopolysaccharides
(b) Calcium petite
(c) Lignin (d) Cellulose

219. Continuity of protoplasm through plasmodeomata is called:
(a) Endoplasmic reticulum
(b) Symplast
(c) Intercellular space
(d) None of the above

Ans. 201. (b) 202. (c) 203. (c) 204. (c) 205. (c) 206. (b) 207. (a) 208. (c) 209. (b) 210. (d) 211. (b) 212. (d) 213. (a) 214. (b) 215. (a) 216. (c) 217. (b) 218. (b) 219. (b)

220. Cell wall space outside the protoplast constitutes:
(a) Plasmodesmata (b) Phragmoplast
(c) Symplast (d) Apoplast

221. Well-defined nucleus is found in:
(a) Eukaryotes (b) Prokaryotes
(c) Cyanobacteria (d) Bacteria

222. Plant cell differs from animal cells having:
(a) Cytoskeleton
(b) Golgi bodies
(c) Ribosomes (d) Cell wall

223. Cell theory was put forward by:
(a) Leeuwenhoek
(b) Schleiden and Schwann
(c) Singer and Nicolson
(d) None of the above

224. Bacteria having a tuft of flagella at both the poles are:
(a) Amphitrichous (b) Lophotrichous
(c) Peritrichous (d) Atrichous

225. Polytene chromosomes were discovered in:
(a) Culex (b) Musa
(c) Drosophila (d) Chironomus

226. Proteins required for functioning of nucleus are formed in:
(a) Mitochondria (b) Cytoplasm
(c) RER (d) Nucleous

227. Select the correct statement among the following:
(a) Chloroplasts are found in plant cells but not in prokaryotic or animal cells
(b) Golgi apparatus is found only in the animal cells
(c) Animal cells contain microtubules but the plant cells do not have microtubules
(d) All cells have a cell wall

228. Teichoic acid occurs is the wall of:
(a) Cyanobacteria (b) Mycoplasma
(c) Gram +ve bacteria
(d) Gram –ve bacteria

229. An interconnected membranous network of the cell composed of vesicles, flattened sacs and tubules is:
(a) Endoplasmic reticulum
(b) Nucleus
(c) Mitochondria (d) Lysosomes

230. Plasmids were discovered by:
(a) Messing and Vieria
(b) Boliver and Rodriguez
(c) Lederberg and Tatum
(d) Hayes and Lederberg

231. Consider the statements regarding facilitated transport:
(1) Requires ATP energy
(2) Transport saturates
(3) Highly selective
(4) Requires special membrane properties
(5) Uphill transport

Of above statements
(a) 1, 4 and 5 are relevant, 2 and 3 are irrelevant
(b) 2, 3 and 4 are relevant, 1 and 5 are irrelevant
(c) 3, 4 and 5 are relevant, 1 and 2 are irrelevant
(d) 1, 2 and 3 are relevant, 4 and 5 are irrelevant

232. Consider the following statements:
(A) In prokaryotic cell, an outgrowth of plasma membrane into the cell is called polysome
(B) SER is major site for glycoprotein synthesis
(C) RuBisCO is most abundent protein of biosphere
(D) Mitochondria, chloroplasts and peroxisomes are not the part of endomembrane system

Of the above statements:
(a) B and D are the correct
(b) A and D alone are correct
(c) C and D alone are correct
(d) A and B alone are correct

Ans. 220. (d) 221. (a) 222. (d) 223. (b) 224. (a) 225. (d) 226. (b) 227. (a) 228. (c) 229. (a) 230. (d) 231. (b) 232. (c)

233. Choose the wrong statements regarding bacterial cell:
(A) Glycocalyx is the outer most envelop in bacteria
(B) Glycocalyx could be a loose sheath called capsule
(C) Glycocalyx may be thick and though slime layer
(D) A special structure formed by the plasma membrane is called mesosome
(E) Small bristle–like fibres sprouting out of the cell are called fimbriae
(a) (C) and (D) are wrong
(b) (B) and (C) are wrong
(c) (A) and (C) are wrong
(d) (A) and (D) are wrong

234. Among the following which is seen only prokaryotic cell?
(a) DNA (b) ER
(c) Dictysome (d) Mesosome

235. In which type of chromosome, one arm is very long and one arm is very short?
(a) Telocentric
(b) Submetacentric
(c) Metacentric
(d) Acrocentric

236. Prokaryotic ribosomes are:
(a) 80 C (b) 70 S
(c) 60 S (d) 50 S

237. Which is not found in prokaryotic cell?
(a) Ribosomes (b) Cell wall
(c) Nuclear membrane
(d) Plasma membrane

238. The site of protein synthesis is:
(a) DNA
(b) Nucleus
(c) Mitochondria
(d) Ribosomes

239. Color of flower petals is due to:
(a) Phycoerythrin (b) Anthocyanin
(c) Carotenes (d) Xanthophyll

240. Chromosomes are concerned with:
(a) Transmission of hereditary characters
(b) Assimilation
(c) Growth
(b) Respiration

241. Plant cells are differs from animal cells by:
(a) Absence of chlorophyll
(b) Absence of cell wall
(c) Presence of cell wall and chloroplasts
(d) Presence of vacuoles

242. A chromosome with centromere nearer to one end forming shorter and longer arms is:
(a) Telocentric (b) Acrocentric
(c) Submetacentric (d) Metacentric

243. Axonemal arrangement of microtubules is:
(a) 9 peripheral pairs of doublets and one central singlet
(b) 9 peripheral pairs of doublets and one central pair of singlets
(c) 6 peripheral pairs of doublets and one central singlet
(d) 6 peripheral pairs of doublets and one central pair of singlets

244. Detailed structure of the membrane was studied after ther advent of electron microscope is:
(a) 1990s (b) 1970s
(c) 1950s (d) 1930s

245. Which cellular part is correctly described?
(a) Lysosomes—Optimally active at 8.5 pH
(b) Ribosomes—Those in chloroplasts are larger (80 S) while those in cytoplasm are maller (70 S)
(c) Centrioles—Sites for active RNA synthesis
(d) Thylakoids—Flatten of membranous sacs forming grana

Ans. 233. (b) 234. (d) 235. (d) 236. (b) 237. (c) 238. (d) 239. (b) 240. (a) 241. (c) 242. (c) 243. (b) 244. (c) 245. (d)

246. First successful tissue culture was that of:
(a) Tomato root (b) Carrot root
(c) Potato stem (d) Tobacco callus

247. Tissue-used by Steward et al (1957) to prove cellular totipotency was:
(a) Pith of root (b) Pith of stem
(c) Phloem of root (d) Phloem of stem

248. White performed successful tissue culture in:
(a) 1939 (b) 1932
(c) 1929 (d) 1922

249. The smallest animal egg is that of:
(a) Ostrich (b) Human female
(c) Duck (d) Hen

250. Largest animal cell is that of:
(a) Ostrich (b) Duck
(c) Human (d) Hen

251. Human egg is larger than human sperm because it has:
(a) Laisger nucleus
(b) More membrane
(c) More cytoplasm
(d) All of the above

252. Larger sized organisms usually have:
(a) Large sized cells
(b) More noncellular material
(c) Higher number of cells
(d) More cellular excretions

253. Large cells have:
(a) High metabolic rate
(b) High respiration rate
(c) Low surface: volume ratio
(d) High surface: volume ratio

254. Metabolically activity cells have:
(a) Lower nucleocytoplasmic ratio
(b) Higher nucleocytoplasmic ratio
(c) Higher surface volume ratio
(d) Both (b) and (c)

255. Alga acetabularia is:
(a) Unicellular prokaryote
(b) Multicellular prokaryote
(c) Unicellular eukaryote
(d) Multicellular eukaryote

256. Size of acetabularia is:
(a) 10 cm (b) 10 mm
(c) 1.0 mm (d) 0.1 mm

257. Largest cell of the human body is:
(a) Voluntary muscle fibre cell
(b) Nerve cell
(c) Striated muscle fibre cell
(d) Cardiac muscle fibre cell

258. Average weight of human body cells is:
(a) 5–10 gm (b) 10–15 gm
(c) 20–30 gm (d) 70–40 gm

259. Large plant cells are:
(a) Xylem vessel cells
(b) Parenchyma cells
(c) Sieve tube cells
(d) Sclerenchyma fibres

260. Jute fibres have a length of:
(a) 30–40 mm (b) 300–400 mm
(c) 30–90 cm (d) 3–9 m

261. Human egg has a volume larger than human sperm by:
(a) 100,000 (b) 10,000
(c) 1000 (d) 100

262. Efficient large size cells should be:
(a) Elongated
(b) Branched
(c) With membrane extensions
(d) Any of the above

263. The term protoplasm was coined by:
(a) Corti (b) Dujardin
(c) Purkinje
(d) Dutrochet

264. Names of Schleiden and Schwann are associated with:
(a) Protoplasm as the physical basis of life
(b) Cell theory
(c) Theory of cell lineage
(d) Nucleus functions as control center of cell

Ans. 246. (a) 247. (c) 248. (b) 249. (b) 250. (a) 251. (c) 252. (c) 253. (c) 254. (d) 255. (c) 256. (a) 257. (b) 258. (c) 259. (d) 260. (c) 261. (a) 262. (d) 263. (c) 264. (b)

265. Which is correct about cell theory in view of current status of our knowledge about cell structure
(a) It needs modification due to discovery of subcellular structures like chloroplasts and mitochondria
(b) Modified cell theory means that all living beings are composed of cells capable of reproducing
(c) Cell theory does not hold good because all living beings (e.g. virus) do not have cellular organization
(d) Cell theory means that all living objects consist of cells whether or not capable of reproducing

266. Minimum cell size seen under light microscope is:
(a) 1 µm (b) 0.1 pm
(c) 0.25 gm (d) 0.5 gm

267. An exception to cell theory is:
(a) Mycoplasma (b) Virus
(C) Protistans (d) Algae

268. Cellular totipotency means:
(a) Synthesis of new cells
(b) Formation of new species
(c) Formation of new plants
(d) Capability of a plant cell to form complete plant

269. Who proposed cell lineage/cell always arises from pre-existing cell?
(a) Lamarck (b) Virchow
(C) Schwann (d) Darwin

270. The suffix Sin ribosome unit indicates:
(a) Sedimentation coefficient
(b) Solubility
(c) Surface area
(d) Size

271. Letter S in the structural unit of ribosome denotes:
(a) Concentration unit
(b) Polymerization unit
(c) Svedberg unit
(d) Stability unit

272. Nucleus was discovered by:
(a) Robert Brown
(b) Leeuwenhoek
(c) Robert Hooke
(d) Schleiden and Schwann

273. Purkinje coined the term protoplasm in:
(a) 1739 (b) 1839
(c) 1779 (d) 1879

274. Cell theory was put forward by:
(a) Schleiden and Schwann
(b) Sutton and Boveri
(c) Watson and Crick
(d) Darwin and Wallace

275. The term cell was coined by:
(a) Robert Hooke
(b) Leeuwenhoek
(c) Schleiden and Schwann
(d) Altmann and Kolliker

276. Figures of cork cells observed by Robert Hooke were published in
(a) Genera Plantarum
(b) Species Plantarum
(c) Origin of species
(d) Micrographia

277. The cells discovered in thin sections of cork by Robert Hooke were actually:
(a) Cell walls
(b) Cellulose
(c) Protoplasm (d) Nuclei

Ans. 265. (c) 266. (c) 267. (b) 268. (d) 269. (b) 270. (a) 271. (c) 272. (a) 273. (b) 274. (a) 275. (a) 276. (d) 277. (a)

CHECK YOUR GRASP

1. The term chromatin was coined by:
(a) Heitz (b) Flemming
(c) Fontana (d) Bowman

2. Glyoxisomes occur in:
(a) Leaf cells (b) Fatty seeds
(c) Roots
(d) Meristematic cells

3. Largest organelle of the cell is:
(a) Nucleus (b) Chloroplast
(c) Mitochondrion (d) Vacuole

4. Contractile vacuoles take part in:
(a) Storage of wastes
(b) Osmoregulation
(c) Exretion (d) Both (b) and (c)

5. Most abundant lipid of cell membrane is
(a) Cholesterol (b) Phospholipid
(c) Glycolipid (d) Cerebroside

6. Balbiani rings are:
(a) Uncoiling of chromonemata
(b) Coiling of chromonemata
(c) Enlargements of centromere
(d) None of the above

7. Bacterial wall contains:
(a) Cellulose (b) Peptidoglycan
(c) Murein (d) Both (b) and (c)

8. ER is made of:
(a) Cisternae (b) Tubules
(c) Vesicles (d) All the above

9. The term protoplast was coined by:
(a) Strasburger (b) Hanstein
(c) Butschli (d) Fischer

10. Secondary wall grows in thickness by:
(a) Intercalation (b) Introgression
(c) Accretion (d) Epiboly

11. Cell membrane is visible under:
(a) Electron microscope
(b) Optical microscope
(c) Both optical and electron microscope
(d) Oil immersion lens

12. Contractile vacuoles take part in:
(a) Storage of wastes
(b) Osmoregulation
(c) Excretion
(d) Both b and c

13. The concept of unity membrane was propounded by:
(a) Overtion
(b) Gorter and GRendel
(c) Davson
(d) Robertson

14. The term protoplasm was coined by:
(a) Robert Hooke (b) Dujardin
(c) Rober brown (d) Purkinje

15. Cell theory was put forward by:
(a) Schleiden and Schwann
(b) Sutton and Boveri
(c) Watson and Crick
(d) Darwin and Wallace

16. The term cell was coined by the cell was first seen by:
(a) Robert Hooke
(b) Leeuwenhoek
(c) Schleiden and Schwann
(d) Altmann and Kolliker

17. Svedberg unit is for :
(a) Molecular weight
(b) Density
(c) Sedimentation coefficient
(d) Surface tension

18. Plasmodesmata connections help in:
(a) Synchronous mitotic divisions
(b) Locomotion of unicellular organisms
(c) Movement of substances between cells
(d) Cytoplasmic streaming

19. Large plant cells are:
(a) Xylem vessel cells
(b) Parenchyma cells
(c) Sieve tube cells
(d) Sclerenchyma fibres

Ans.	1. (b)	2. (b)	3. (a)	4. (d)	5. (b)	6. (a)	7. (d)	8. (d)	9. (b)	10. (c)	11. (d)
	12. (d)	13. (d)	14. (d)	15. (a)	16. (a)	17. (c)	18. (c)	19. (c)			

20. Study of the cell structure under microscope:
(a) Cytology (b) Cell biology
(c) Cytochemistry (d) Microanatomy

21. Study of cells in all aspects is:
(a) Cytotaxonomy (b) Cytology
(c) Cell biology (d) Cytochemistry

22. Schleiden and Schwann proposed cell theory:
(a) 1836–37 (b) 1838–39
(c) 1901–02 (d) 1938–39

23. Minimum cell size seen under light microscope is:
(a) 1¼ m (b) 0.1 ¼ m
(c) 0.25¼ m (d) 0.5 ¼ m

24. The term microtubule was coined by:
(a) De Robertis and Franchi
(b) Mayer
(c) Palade (d) Slautterback

25. Cellulose is stained blue with:
(a) Phloroglucinol
(b) Chlor-Zinc iodine
(c) Eosin (d) Methylene blue

26. Who proposed that cell is a unit of life and that a tissue is made of cells?
(a) Schleiden (b) Schwann
(c) Dutrochet (d) Steward

27. Longest cells in human body are:
(a) Nerve cells (b) Bone cells
(c) Leg muscle cells
(d) Heart muscle cells

28. A plant cell has potential to develop into full plant. The property is called:
(a) Tissue culture (b) Pleuripotency
(c) Totipotency (d) Gene cloning

29. Protoplasm forms percentage of total weight of the body:
(a) 45% (b) 70%
(c) 95% (d) 15%

30. According to cell theory:
(a) Cells are fundamental structural units of organisms
(b) Cells reproduce
(c) Cells are living
(d) Cells have nuclei

31. Protoplasm is:
(a) Emulsion
(b) Complex colloidal solution
(c) Molecular solution
(d) Suspension

32. The term sarcode was used for living substance of cell by:
(a) Hooke (b) Dujardin
(c) Purkinje (d) Brown

33. Protoplasm present in cell is:
(a) Nonliving matter
(b) Bearer of hereditary characters
(c) Living matter without function
(d) Physical basis of life

34. The ability of a cell to form the whole organism is:
(a) Regeneration (b) Cloning
(c) Totipotency (d) Development

35. Schleiden and Schwann proposed cell theory in:
(a) 1836–37 (b) 1838–39
(c) 1901–02 (d) 1938–39

36. An individual has a number of different types of cells was first stated by:
(a) Dujardin (b) Robert Brown
(c) Dutrochet
(d) Schleiden and Schwann

37. Callus is:
(a) Material used in healing in phloem
(b) Secondary tissue developed by woody plants
(c) An undifferentiated mass of cells
(d) All of the above

38. Which one is enucleated?
(a) Squamous epithelial cells
(b) Mature leucocyte of man
(c) Mature erythrocyte of frog
(d) Mature erythrocyte of man

Ans.	20. (b)	21. (a)	22. (b)	23. (c)	24. (c)	25. (d)	26. (b)	27. (a)	28. (c)	29. (c)	30. (a)
	31. (b)	32. (b)	33. (d)	34. (c)	35. (b)	36. (c)	37. (c)	38. (d)			

39. One of the following is anucleate:
(a) Sieve tube
(b) Companion cell
(c) Medullary ray
(d) All of the above

40. A cell can form many phenotypes. The property is called:
(a) Pleuripotency (b) Totipotency
(c) Parasexuality
(d) Parthenogenesis

41. Living beings are made up of cells. This was first stated by:
(a) Lamarck (b) von Helmont
(c) Schleiden and Schwann
(d) Hugo de Vries

42. In tissue culture embryoids are formed from pollen grains due to:
(a) Test tube culture
(b) Double fertilization
(c) Cellular totipotency
(d) Organogenesis

43. Cellular totipotency is demonstrated by:
(a) Only gymnosperm cells
(b) All plant cells
(c) All eukaryotic cells
(d) Only bacterial cells

44. Fertilization of an egg with sperm was discovered by:
(a) Hertwig (b) Flemming
(c) Waldeyer (d) Malpighi

45. The volume of which of the following is given in right sequence?
(a) Ostrich egg > Hen egg > Human egg > Smallest virus
(b) Human egg > Ostrich > Smallest bacteria
(c) Bacteria > Virus > Human sperm
(d) Virus > Bacteria > Human sperm > Human egg

46. Basic unit of life is:
(a) Cell (b) Tissue
(c) Organ (d) Organ system

47. Cell is a unit of:
(a) Structure (b) Function
(c) Mass of protoplasm
(d) All of the above

48. Study of the cell structure under microscope:
(a) Cytology (b) Cell biology
(c) Cytochemistry (d) Microanatomy

49. Study of cells in all aspects is:
(a) Cytotaxonomy (b) Cytology
(c) Cell biology
(d) Cytochemistry

50. Cells were observed prior to Robert Hooke.
(a) Aristole (b) Malpighi
(c) Bauhin (d) Eicher

Mark your score and evaluate yourself accordingly

Ans. 39. (a) 40. (a) 41. (a) 42. (c) 43. (b) 44. (a) 45. (a) 46. (a) 47. (d) 48. (a) 49. (c) 50. (b)