MCQs: The Fundamental Unit of Life

1. Who discovered cells?
   A. Leeuwenhoek B. Robert Brown
   C. Robert Hooke ✅ D. Schwann
2. What is the basic structural and functional unit of life?
   A. Atom B. Molecule C. Tissue D. Cell ✅
3. The term "cell" was first used by:
   A. Virchow B. Hooke ✅ C. Schleiden D. Brown
4. Cell wall is found in:
   A. Animal cells B. Plant cells ✅
   C. Bacteria only D. Virus
5. The jelly-like fluid inside a cell is called:
   A. Nucleus B. Cytoplasm ✅
   C. Protoplasm D. Vacuole
6. Which structure controls the entry and exit of substances in a cell?
   A. Cell wall B. Cytoplasm
   C. Nucleus D. Plasma membrane ✅
7. Which organelle is known as the powerhouse of the cell?
   A. Nucleus B. Lysosome
   C. Mitochondria ✅ D. Ribosome
8. Which organelle contains chlorophyll?
   A. Mitochondria B. Ribosome
   C. Golgi apparatus D. Chloroplast ✅
9. Which cell organelle is called the 'suicide bag'?
   A. Nucleus B. Mitochondria
   C. Lysosome ✅ D. Plastid
10. What is the function of ribosomes?
    A. Photosynthesis B. Respiration
    C. Protein synthesis ✅ D. Digestion
11. The largest cell organelle in a plant cell is:
    A. Mitochondria B. Nucleus
    C. Vacuole ✅ D. Plastid
12. Which structure contains DNA?
    A. Cytoplasm B. Ribosomes
    C. Nucleus ✅ D. Cell wall
13. Osmosis is:
    A. Movement of air B. Movement of water through membrane ✅
    C. Movement of glucose D. Movement of protein
14. The function of Golgi apparatus is:
    A. Protein synthesis B. Energy production
    C. Modification and packaging ✅ D. Photosynthesis
15. Which cell organelle detoxifies poisons in liver cells?
    A. Lysosome B. SER ✅ C. RER D. Plastids
16. Which organelle is double membrane bound and has its own DNA?
    A. Ribosome B. Golgi body
    C. Mitochondria ✅ D. Endoplasmic Reticulum
17. Plasmolysis is observed when a cell is placed in:
    A. Isotonic solution B. Hypotonic solution
    C. Hypertonic solution ✅ D. Pure water
18. A selectively permeable membrane:
    A. Allows all substances B. Blocks all substances
    C. Allows only water D. Allows selective substances ✅
19. DNA is mainly present in:
    A. Cytoplasm B. Nucleus ✅
    C. Cell wall D. Plasma membrane
20. Which of the following are prokaryotes?
    A. Plants B. Animals
    C. Bacteria ✅ D. Fungi
21. Chromosomes become visible during:
    A. Resting phase B. Cell death
    C. Cell division ✅ D. Protein synthesis
22. The network of tubules inside the cytoplasm is:
    A. Golgi apparatus B. ER ✅
    C. Lysosome D. Ribosome

23. Mitosis results in:
    A. 4 cells B. 2 identical cells ✅
    C. 1 cell D. Death
24. Meiosis results in:
    A. 2 cells B. Identical cells
    C. 4 haploid cells ✅ D. 8 cells
25. Which of the following is not found in prokaryotic cells?
    A. Ribosomes B. Plasma membrane
    C. Nucleoid D. Nucleus ✅
26. Plant cells can withstand hypotonic solutions because of:
    A. Cytoplasm B. Cell membrane
    C. Cell wall ✅ D. Chloroplast
27. The nucleus is surrounded by:
    A. Plasma membrane B. ER
    C. Nuclear membrane ✅ D. Cytoplasm
28. The green color of plants is due to:
    A. Mitochondria B. Chloroplast ✅
    C. Vacuole D. Cell wall
29. Vacuoles store:
    A. Enzymes only B. Cell sap ✅
    C. Glucose only D. Hormones only
30. Function of cell wall is:
    A. Respiration B. Storage
    C. Protection and structure ✅ D. Protein synthesis
31. Which is common in both prokaryotes and eukaryotes?
    A. Nucleus B. ER
    C. Ribosomes ✅ D. Mitochondria
32. In Amoeba, food is engulfed by:
    A. Osmosis B. Endocytosis ✅
    C. Diffusion D. Active transport
33. A cell shrinks when placed in:
    A. Distilled water B. Hypotonic solution
    C. Isotonic solution D. Hypertonic solution ✅
34. The outermost layer in an animal cell is:
    A. Cell wall B. Plasma membrane ✅
    C. Cytoplasm D. Nucleus
35. Genes are part of:
    A. Ribosomes B. ER
    C. Chromosomes ✅ D. Mitochondria
36. ATP is produced in:
    A. Chloroplast B. Golgi apparatus
    C. Mitochondria ✅ D. Ribosome
37. The function of leucoplasts is:
    A. Photosynthesis B. Storage ✅
    C. Respiration D. Digestion
38. Which of the following is a membrane-bound organelle?
    A. Ribosome B. Nucleoid
    C. Mitochondria ✅ D. Chromatin
39. Chromatin is found in:
    A. Cytoplasm B. Nucleus ✅
    C. Golgi D. ER
40. Cell theory was given by:
    A. Hooke and Brown B. Schleiden and Schwann ✅
    C. Darwin and Lamarck D. Watson and Crick
41. Which structure is involved in membrane biogenesis?
    A. Ribosome B. SER✅
    C. RER D. Golgi
42. Which of these are not found in animal cells?
    A. Mitochondria B. Vacuoles
    C. Plastids ✅ D. Ribosomes
43. Cell sap is found in:
    A. Nucleus B. Cytoplasm
    C. Mitochondria D. Vacuole ✅
44. Organisms with undefined nucleus are:
    A. Prokaryotes ✅ B. Eukaryotes
    C. Unicellular D. Plants
45. Cells that change shape are:
    A. Nerve cells B. RBC
    C. Amoeba ✅ D. Muscle cells

46. The function of chromosomes is:
    A. Respiration B. Inheritance of traits ✅
    C. Transport D. Storage
47. In which organelle are digestive enzymes found?
    A. Mitochondria B. Lysosomes ✅
    C. ER D. Ribosomes
48. The number of chromosomes in mitosis:
    A. Doubles B. Remains the same ✅
    C. Becomes half D. Triples
49. Plant vacuole is filled with:
    A. Enzymes B. Hormones
    C. Cell sap ✅ D. Water only
50. Cell division that forms gametes is:
    A. Mitosis B. Cytokinesis
    C. Meiosis ✅ D. Budding
51. Which organelle helps in intracellular transport?
    A. Golgi body B. Mitochondria
    C. Endoplasmic Reticulum ✅ D. Vacuole
52. Which solution will cause a cell to swell?
    A. Hypertonic B. Isotonic
    C. Hypotonic ✅ D. Saturated
53. The unit used to measure cell size is:
    A. mm B. cm C. µm (micron) ✅ D. nm
54. Which of the following has no nuclear membrane?
    A. Plant cell B. Animal cell
    C. Fungal cell D. Bacterial cell ✅
55. Methylene blue is used for:
    A. Digestion B. Movement
    C. Respiration D. Staining cells ✅
56. The process of engulfing food in Amoeba is:
    A. Diffusion B. Endocytosis ✅
    C. Osmosis D. Phagocytosis
57. A cell that lacks mitochondria is:
    A. Human skin cell B. Paramoecium
    C. Bacterial cell ✅ D. Algal cell
58. Which cell organelle helps in cell division in animal cells?
    A. Centrosome ✅ B. Vacuole
    C. Ribosome D. Plastid
59. The process by which a cell divides into two identical daughter cells is:
    A. Meiosis B. Fertilization
    C. Mitosis ✅ D. Budding
60. Which structure gives rigidity to plant cells?
    A. Plasma membrane B. Cell wall ✅
    C. Vacuole D. Cytoplasm
61. Which part of the cell is responsible for heredity?
    A. Ribosomes B. Golgi body
    C. Nucleus ✅ D. Cytoplasm
62. What is the function of a food vacuole in Amoeba?
    A. Excretion B. Photosynthesis
    C. Digestion ✅ D. Respiration
63. Which cell part helps in protein synthesis?
    A. ER B. Ribosome ✅
    C. Golgi body D. Mitochondria
64. Which pigment is present in chloroplasts?
    A. Hemoglobin B. Chlorophyll ✅
    C. Keratin D. Melanin
65. Which is the outermost boundary in a plant cell?
    A. Cell wall ✅ B. Cell membrane
    C. Cytoplasm D. Chloroplast
66. Which organelle is involved in packaging and secretion?
    A. Ribosome B. Golgi apparatus ✅
    C. Lysosome D. Mitochondria
67. Which of the following cells is spherical and lacks chloroplasts?
    A. Guard cell B. Onion cell
    C. Human cheek cell ✅ D. Elodea cell
68. The nucleus of a prokaryotic cell is:
    A. Absent B. Poorly defined ✅
    C. Well defined D. Surrounded by a nuclear membrane

69. The main function of the nucleus is:
    A. Respiration B. Digestion
    C. Protein synthesis D. Control of cell activities ✅
70. The plant organelle storing starch is:
    A. Chromoplast B. Chloroplast
    C. Leucoplast ✅ D. Ribosome
71. A cell placed in salt solution shrinks due to:
    A. Absorption B. Active transport
    C. Endocytosis D. Osmosis ✅
72. The outer membrane of mitochondria is:
    A. Rigid B. Porous ✅
    C. Smooth D. Pigmented
73. What structure connects the nucleus and cytoplasm?
    A. Ribosome B. Plasma membrane
    C. Nuclear pore ✅ D. Cell wall
74. In plant cells, what stores dissolved sugars and salts?
    A. Cytoplasm B. Vacuole ✅
    C. Nucleus D. Plastid
75. The hereditary material DNA is found in:
    A. Mitochondria only B. Ribosomes
    C. Nucleus ✅ D. Vacuole
76. In which process does a cell shrink?
    A. Plasmolysis ✅ B. Photosynthesis
    C. Glycolysis D. Respiration
77. Which organelle stores enzymes for breaking down waste?
    A. Mitochondria B. ER
    C. Golgi body D. Lysosomes ✅
78. Which structure performs respiration in a cell?
    A. Golgi apparatus B. Ribosome
    C. Mitochondria ✅ D. Nucleus
79. Double-membraned organelles include:
    A. Ribosomes B. Mitochondria ✅
    C. Lysosomes D. Centrosomes
80. What is the function of SER?
    A. Protein synthesis B. Lipid synthesis ✅
    C. DNA replication D. Cell division
81. The discovery of the nucleus is credited to:
    A. Hooke B. Schwann
    C. Brown ✅ D. Schleiden
82. Cell organelle with green pigment is:
    A. Ribosome B. Chloroplast ✅
    C. Golgi D. Vacuole
83. The internal fluid of a cell is called:
    A. Stroma B. Cytoplasm ✅
    C. Matrix D. Sap
84. Which of the following is not membrane-bound?
    A. Nucleus B. Ribosome ✅
    C. Lysosome D. Mitochondria
85. Chromatin material condenses to form:
    A. ER B. Golgi
    C. Ribosome D. Chromosomes ✅
86. Which of the following contains digestive enzymes?
    A. Chloroplast B. Lysosomes ✅
    C. Ribosome D. Golgi
87. The function of nucleoid is:
    A. Photosynthesis B. Respiration
    C. DNA storage in prokaryotes ✅ D. Protein digestion
88. Which of the following has a fixed shape?
    A. Amoeba B. Paramoecium
    C. Onion cell ✅ D. White blood cell
89. Which organelle plays a role in detoxification?
    A. RER B. SER ✅
    C. Golgi D. Lysosome
90. Which part of the cell helps maintain internal pressure?
    A. Cytoplasm B. ER
    C. Vacuole ✅ D. Nucleus
91. The living substance inside a cell is:
    A. Protoplasm ✅ B. Cell sap
    C. Matrix D. Lumen

92. The genetic material in prokaryotes is:
    A. DNA in nucleus B. DNA in cytoplasm ✅
    C. RNA in mitochondria D. Protein in ER
93. Which cell organelle is present only in animal cells?
    A. Cell wall B. Centriole ✅
    C. Plastid D. Chloroplast
94. The colorless plastids that store starch are:
    A. Chloroplasts B. Leucoplasts ✅
    C. Chromoplasts D. Vacuoles
95. What protects the nucleus?
    A. Plasma membrane B. Nuclear membrane ✅
    C. Cytoplasm D. Ribosomes
96. What is the function of chromoplasts?
    A. Provide color ✅ B. Respiration
    C. Storage D. Digestion
97. Proteins and lipids for membranes are made in:
    A. Golgi B. Lysosomes
    C. ER ✅ D. Ribosomes only
98. Cells are discovered in which material?
    A. Onion B. Cork ✅
    C. Potato D. Leaf
99. Which scientist coined the term “protoplasm”?
    A. Hooke B. Brown
    C. Purkinje ✅ D. Schleiden
100. Electron microscopes are useful to:
    A. View planets B. View viruses and organelles ✅
    C. Read chromosomes D. Study genes