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Class: IX
Subject: Biology
Topic: The Fundamentals of Life
No. of Questions: 20
Duration: 60 Min
Maximum Marks: 60

1 Cells and nucleus were discovered by _____ and _____ respectively.

a) Schwann, Schleiden

b) Robert Hook, Galileo

c) Robert Hook, Robert Brown

d) R. Virchow, Robert Hook

Sol. C) Schwann and Schleiden proposed cell theory. Rudolf Virchow proposed that all cells arise from pre-existing cells.

2 The first cell was discovered in the

a) Animals
b) Plants
c) Fungi
d) Cork

Sol. D) Robert Hooke saw cells for the first time in a thin slice of cork with its microscope

3 Fungal cell wall mainly consists of

a) Cellulose

b) Chitin

c) Amino acid, sugar, chitin

d) All of the above

Sol. B) Plants have cell wall made up of cellulose. Chitin is a type of carbohydrate.

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4 All are the postulates of cell theory except

a) All organisms are composed of cell

b) Cell is the basic structural and functional unit of life

c) Cells can arise from non-living source

d) Cells only arise from pre-existing cells

Sol. C) Cells can arise from non-living source

5 The layer of cell wall found between two adjacent cells is called

a) Primary wall

b) Secondary wall

c) Tertiary wall

d) Middle lamellae

Sol. D) The middle lamella is a pectin layer which cements the cell walls of two adjoining cells together. Plants need this to give them stability and so that they can form plasmodesmata between the cells.

6 The fluid-mosaic model was proposed by Singer and Nicholson

a) 1869

b) 1969

c) 1872

d) 1972

Sol. D) 1972

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7 Which one of the cell wall is not made up of cellulose?

a) Bacteria

b) Hydrilla

c) Mango tree

d) Cactus

Sol. A) Hydrilla, mango tree and cactus are all plants so their cell wall is made up of cellulose.

8 Lipid molecules in the cell are synthesized by

a) Smooth endoplasmic reticulum

b) Rough endoplasmic reticulum

c) Golgi apparatus

d) Plastids

Sol. A) Rough endoplasmic reticulum synthesizes proteins. Golgi apparatus is involved in secretion of all types of substances. Plastids are found only in plant cells. They are of three types leucoplasts, chromoplasts and chloroplasts.

9 If a red blood cell (interior concentration of 0.9% salt) was placed into a test tube of 10% salt, what would happen to the red blood cell?

a) It would fill with water and burst
b) Nothing-the solution is isotonic to the interior of the red blood cell
c) The red blood cell would shrink as it loses water to the salt solution in the test tube
d) None of these

Sol. C) Water always moves from region of its high concentration to low concentration.

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10 The rough endoplasmic reticulum owes its rough surface to

a) Mitochondria

b) Proteins

c) Ribosomes

d) DNA particles

Sol. C) Ribosomes

11 Which of the following does best describe the structure of the plasma membrane?

a) Proteins sandwiched between two layers of phospholipid
b) Proteins embedded in two layers of phospholipid
c) A layer of protein coating a layer of phospholipid
d) Phospholipids embedded in two layers of protein

Sol. B) The fluid mosaic model explains various observations regarding the structure of functional cell membranes. The model, which was devised by SJ Singer and GL Nicolson in 1972, describes the cell membrane as a two-dimensional liquid in which phospholipid and protein molecules diffuse easily.

12 Cell to cell contact in plant cell is maintained through

a) Tight junction
b) Desmosomes
c) Interdigitations
d) Plasmodesmata

Sol. D) Plasmodesmata are microscopic channels which traverse the cell walls of plant cells and some algal cells, enabling transport and communication between them.

13 Which part of the cell serves as the intracellular highway?

a) Endoplasmic reticulum
b) Golgi apparatus
c) Cell membrane
d) Mitochondria

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Sol. A) Endoplasmic reticulum helps in intracellular and intercellular transport of materials.

14 Which of the following is found in plant cells, but not in animal cells?

a) Cell wall
b) Nucleus
c) Endoplasmic reticulum
d) Mitochondria

Sol. A) Cell wall is present in plant cells and not in animal cells.

15 Which of the following can be made into crystals?

a) A bacterium
b) An amoeba
c) A virus
d) Plastic

Sol. C) Crystallization is the term which is referred to the process of transforming viral components into organized particles (solid).

16 Which of these is the smallest in size?

a) Ribosome
b) Lysosome
c) Mitochondria
d) Chloroplast

Sol. A) Ribosome

17 Which of the following organelles does not have membrane?

a) Ribosome
b) Nucleus
c) Chloroplast
d) Mitochondria

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Sol. A) Ribosomes are tiny membrane less organelle present in the cytoplasm.

18 Plastids which are pigment free

a) Chloroplast
b) Lysosome
c) Leucoplast
d) Chromoplast

Sol. C) Chromoplasts are colored plastids. Chloroplasts are green colored plastids. Lacking pigments, leucoplasts are not green. They are colorless, so they are predictably located in roots and non-photosynthetic tissues of plants. Lysosome is a plant organelle and not a type of plastid.

19 Which of the following is called 'suicidal bags'?

a) Centrosomes
b) Lysosomes
c) Microsomes
d) Mesosomes

Sol. B) Lysosomes are called suicidal bags as enzymes contained in them can digest the cell's own material when damaged or dead.

20 The infoldings of the inner membrane of mitochondria is referred to as

a) Grana
b) Stroma
c) Oxysome
d) Cristae

Sol. D) Grana and stroma are present in chloroplasts.