

CELL - THE UNIT OF LIFE

1. Unicellular organisms are :-
 - (1) not capable of independent existence because they cannot perform all the essential functions of life
 - (2) not capable of independent existence but they can perform all the essential vital functions
 - (3) are capable of independent existence and perform all the essential vital functions
 - (4) are capable of independent existence but they can not perform vital functions
2. Cell is the fundamental structural and functional unit of all living organisms is evidenced by the fact that :-
 - (1) Anything less than a complete structure of a cell does not ensure independent living
 - (2) Subcellular components can regenerate whole cell
 - (3) A cell arises by fusion of two cells
 - (4) All cells are totipotent
3. Select the right option, which relates to Schwann, regarding following statements :-
 - (I) He reported that cells have a thin outer layer, which is today known as plasma membrane
 - (II) Cell wall is a unique character of the plant cell
 - (III) Body of the plants and animals are composed of cells and products of cells

Options :-

 - (1) All are correct
 - (2) Only III is correct
 - (3) Only II and III are correct
 - (4) All are incorrect
4. Which of the following statements was not explained in the cell theory given by Schleiden and Schwann?
 - (1) All living organisms are composed of cells and products of cells
 - (2) Cell is the structural and functional unit of living organisms
 - (3) New cells arise from pre-existing cells
 - (4) None of the above

5. Go through the following statements and then select correct option for prokaryotic cells :-
 - (I) They are generally smaller than eukaryotic cells
 - (II) They multiply more rapidly than the eukaryotic cells
 - (III) They are presented by bacteria, BGA, mycoplasma and PPLO (Pleuro Pneumonia like organism)

Options :-

- (1) All of these
 - (2) Only II and III
 - (3) Only III
 - (4) Only I and III
6. Arrange the following cells in an ascending order of their sizes :-
 - (I) Mycoplasma
 - (II) Ostrich egg
 - (III) Human RBC
 - (IV) Bacteria
 - (1) I, II, III, IV
 - (2) I, IV, III, II
 - (3) II, IV, I, III
 - (4) IV, III, II I
 7. Match the column-I with column-II :-

	Column-I Various types of cell and organism		Column-II Size
I	Typical bacteria	A	10-20 μm
II	Viruses	B	1-2 μm
III	PPLO	C	0.1 μm
IV	A typical eukaryotic cell	D	0.02-0.2 μm

Options :-

- (1) I-B; II-D; III-C; IV-A
- (2) I-A; II-B; III-C; IV-D
- (3) I-D; II-C; III-B; IV-A
- (4) I-B; II-D; III-A; IV-C

8. (I) It is the extension of plasma membrane into the cytoplasm
(II) It helps in cell wall formation, DNA replication, helps in respiration, secretion processes, increases the surface area of plasma membrane and enzymatic contents.
(III) It is the characteristic of prokaryotic cells
The above features are attributed to the :-
(1) Nucleoid (2) Plasmid
(3) Mesosome (4) Pilus
9. Which of the following statements is/are false for prokaryotic cell inclusions?
(1) These are storage granules in the cytoplasm
(2) They are membranous
(3) Phosphate granules, cyanophycean granules and glycogen granules are examples of cell inclusions
(4) All of the above
10. There is an extensive compartmentalization of cytoplasm through membrane bound organelles in all of the following except :-
(1) Prokaryotes (2) Diatoms
(3) Plant and fungi (4) Animals
11. The best material for the study of structure of cell membrane is :-
(1) RBC of human beings
(2) RBC of frog
(3) Kidney cell
(4) Muscle cell
12. Why tails of lipids in the membrane are towards the inner part?
(1) The tail is hydrophilic hydrocarbon so has to be protected from aqueous environment towards inner part
(2) The tail is polar hydrocarbon so has to be protected from lipophilic environment
(3) The non-polar or hydrophobic hydrocarbon tails of lipid, being on inner side ensures their protection from aqueous environment
(4) The tail is hydrophilic so it tends to be located towards the aqueous inner side of the membrane
13. According to the fluid mosaic model of the cell membrane, the proteins are located :-
(1) as a continuous layer over the outer surface of the membrane only
(2) as a continuous layer over the inner surface of the membrane only
(3) On the surface (as peripheral proteins) and in the interior of the membrane (as integral proteins)
(4) in the middle of the membrane, between the lipid layers only
14. The fluid mosaic model explains :-
(1) only the structural aspects of cell membrane
(2) only the functional aspects of cell membrane
(3) both the structural and functional aspects of cell membrane
(4) only fluidity of cell membrane
15. The polar molecules :-
(1) can pass through bilayer of lipid of plasma membrane
(2) cannot pass through bilayer of lipid of plasma membrane
(3) need carrier proteins of the membrane to facilitate their transport across the membrane
(4) both 2 and 3
16. The proteins that will function outside the cytosol are made by :-
(1) Golgi body
(2) ribosomes in mitochondria
(3) ribosomes on RER
(4) ribosomes in the nucleus
17. A cell which is very active in the synthesis and secretion of proteins would be expected to have :-
(1) equal amount of RER and SER
(2) more SER than RER
(3) more RER than SER
(4) more GB and no RER

18. (A) Varied number of cisternae are present in GB
 (B) Golgi cisternae are concentrically arranged near the nucleus
 (C) GB shows polarity-cis/proximal/forming/convex face near nucleus and distal/concave trans/maturation face
 (D) The cis and trans faces are interconnected
 (E) Both the faces are similar
 Which of the above statements about GB is/are false?

- (1) C and E (2) Only D
 (3) D and E (4) Only E

19. Consider the following statements :-
 (a) Plant cells have centrioles which are absent in almost all animal cells
 (b) Ribosomes are the site of protein synthesis
 (c) The middle lamella is mainly composed of calcium carbonate, which holds the different neighbouring cells together
 (d) In animal cells lipid like steroidal hormones are synthesized by smooth endoplasmic reticulum.

Of the given statements :-

- (1) Only a and b are correct
 (2) Only a and d are correct
 (3) Only b and d are correct
 (4) Only c and d are correct

20. The number of chloroplast varies from 1 per cells in a to b per cell in the mesophyll :-

- (1) a-*Chlorella*, b-15 to 20
 (2) a-*Chlamydomonas*, b-20 to 40
 (3) a-*Chlamydomonas*, b-15 to 20
 (4) a-*Chlamydomonas*, b-10 to 40

21. Fill in the blanks :-

- (I) Centrioles are a structures that lie b to each other
 (II) Centriole has an organisation like c
 (III) Centrioles are made up of nine evenly spaced peripheral fibrils of d protein.
 (IV) Each peripheral fibril of centriole is a e
 (V) Central part of the proximal region of the centriole is called f which is proteinaceous

Choose the correct option for blanks (a to f) :-

- (1) a-spherical; b-parallel, c-cart wheel, d-flagellin, e-doublet, f-bridge
 (2) a-cylindrical; b-perpendicular, c-cart wheel, d-tubulin, e-triplet, f-hub
 (3) a-cylindrical; b-perpendicular, c-cart wheel, d-tubulin, e-doublet, f-hub
 (4) a-spherical; b-perpendicular, c-cart wheel, d-tubulin, e-triplet, f-hub

22. All plastids have same basic structure :-

- (1) because they have to perform the same function
 (2) so that one type of plastid can differentiate into another type of plastid depending upon the requirement
 (3) because all plastids have to store starch, lipids and proteins
 (4) because they are localised in the aerial parts of the plants

ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	3	1	1	3	1	2	1	3	2	1	1	3	3	3	4
Que.	16	17	18	19	20	21	22								
Ans.	3	3	4	3	2	2	2								