

8<sup>th</sup> FB Cell (Subjective questions)

Sol<sup>n</sup> 1 Cell is called the structural unit of life as the structure of every living organism is made up of cells.  
Cell is the functional unit of life because all the functions of body (physiological, biochemical, genetics etc.) are carried out by cells.

Sol<sup>n</sup> 2 Refer page no. 2 {subheading - Discovery of cell}

Sol<sup>n</sup> 3 The ultrastructure of cell organelles can be studied by using electron microscope. The first electron microscope was created by Ernst Ruska in 1931.

Sol<sup>n</sup> 4 Amoeba <sup>(write in italics)</sup> is a unicellular organism while earthworm is a multicellular organism.

- Sol<sup>n</sup> 5
- |                   |                         |
|-------------------|-------------------------|
| a) WBCs           | b) Ovum                 |
| c) Smooth muscles | d) Neurons (Nerve cell) |
| e) RBCs           |                         |

Sol<sup>n</sup> 6) Plant cells → Cell wall  
Animal cells → Cytoskeleton  
Bacteria → cell wall

- Sol<sup>n</sup> 7)
- (i) Plasma membrane
  - (ii) Nucleus or Nucleoid
  - (iii) Cytoplasm

Sol<sup>n</sup> 8) Refer page no. 4 {subheading - Plasma Membrane}

Sol<sup>n</sup> 9) The nucleus is considered to be the control center of the cell because it contains the genetic information (DNA) of the cell.

Sol<sup>n</sup> 10) Genes are present on the DNA.  
Genes are important as these are the basic units of heredity in a living organism. Genes contain the data needed to build and maintain cells.

Sol<sup>n</sup> 11) Refer page no. 5 & 6 {Subheading - Nucleus}

Sol<sup>n</sup> 12) Refer page no. 6 {subheading → Nucleus under ~~part~~ <sup>subtopic</sup> - Chromatin material}

Sol<sup>n</sup> 13) Bacterial cells have nucleoid (genetic material not covered by any membrane), hence prokaryotic white onion cells are eukaryotic having a membrane bound nucleus.

Sol<sup>n</sup> 14) Refer page no. 6 {under subtopic - Nucleolus}

Sol<sup>n</sup> 15) ~~Mitochondria~~

a → 2

b → 3

c → 4

d → 1

Sol<sup>n</sup> 16) a) Chromoplasts

b) Leukoplasts

c) Chloroplasts

Sol<sup>n</sup> 17) a) Plant cells → Plastids, Cell wall

b) Animal cells → Centrioles, Lysosomes

Sol<sup>n</sup> 18) Chloroplast and Mitochondria

Sol<sup>n</sup> 19) Proteins are synthesized in the cytoplasm of the cell with the help of ribosomes.

Nuclear pores present in the nuclear membrane allow the RNA in nucleus ~~reach~~ to reach ribosomes in the cytoplasm for protein synthesis.

- Sol 20) i) Ribosomes, Centrioles  
 ii) Protoplasm  
 iii) Prokaryotic  
 iv) Mitochondria

Sol 21) Refer page no. 7 {Subheading → RER & SER}

Sol 22) → Dictyosome

MCQs (Level-1)

Sol 1) d) Cell wall is the non-living ~~part~~ structure that is found in prokaryotic cells but not in animal eukaryotic cells.

Sol 2) (a) Lysosome has 40 hydrolytic enzymes to break down waste material within a cell.

Sol 3) a) Genes are located on the chromosomes.

Sol 4) (d) DNA and histone proteins together makes up the chromatin material.

Sol 5) (a) Ribosome is a membrane less cell organelle.

Sol 6) (b) Prokaryotic cells do not have their genetic material covered by any membrane, ~~hence called nucleoid.~~ this undefined nuclear region is called nucleoid.

Sol 7) (a) Cells observed by Robert Hooke were ~~only cell walls~~ dead, so they only had cell walls.

Sol 8) (b) Cytoplasm is the fluid part of the cell present between the plasma membrane and nuclear membrane.

Sol 9) (c) Refer page no. 9 {Subtopic → Cytoplasmic Vacuole}



Sol 10 (b) Mitochondria perform respiration, ~~and~~ hence release energy from the stored food molecules (e.g. glucose).

Sol 11 (b) Ostrich egg (170 x 135 mm).

Sol 12 (a) Centrioles are absent in plant cells.

Sol 13 (c) All these cells are ~~unicellular~~ single cells.

Sol 14 (a) Nucleus was discovered by Robert Brown (1831).

Sol 15 (c) Centrioles help in the organization of mitotic spindle during cell division.

Sol 16 (c) The ER is a system of membranes that forms a network in the cytoplasm.

Sol 17 (a) Cell wall is the outermost part of a plant cell.

Sol 18 (a) All eukaryotic cells have a membrane bound nucleus.

Sol 19 (d) Bacterial cell is a prokaryotic cells, so cell organelles will be absent.

Sol 20 (b) Prokaryotic cells have no cell organelles, so not a <sup>partitioned</sup> by internal membranes while eukaryotic cells will have internal membranes of cell organelles.

Sol 21 (a) Animal cells lack cell wall.

Sol 22 (a) Nerve cell is the longest cell in human body.

Sol 23 (d) Protoplasm is cytoplasm plus nucleoplasm.  
In both the animal and plant cell, there is plasma membrane present outside the protoplasm.

Sol 24 (a) Centrosomes (Centrioles) are found in the cytoplasm of a cell.

Sol 20) i) Ribosomes, Centrioles  
 ii) Protoplasm  
 iii) Prokaryotic  
 iv) Mitochondria

Sol 21) Refer page no. 7 {Subheading → RER & SER}

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Sol 9) (c) Refer page no. 9 {Subtopic → Cytoplasmic Vacuole}



Sol 25 (c) Respiration takes place within the mitochondria of a eukaryotic cell.

Sol 26 (d) Lysosome is a single membranous organelle.

Sol 27 (d) Approx. 40 hydrolytic enzymes are present inside the lysosome for intracellular digestion of waste material.

Sol 28 (b) Plant cell wall is made up of cellulose.

Sol 29 (c) Golgi body performs the function of ~~cell secretion~~ cell secretion by secreting modified proteins.

Sol 7 (a) Cells observed by Robert Hooke were ~~alive~~ dead, so they only had cell walls.

Sol 8 (b) Cytoplasm is the fluid part of the cell present between the plasma membrane and nuclear membrane.

Sol 9 (c) Refer page no. 9 {subtopic → Cytoplasmic Vacuole}

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Sol 29 (c) Golgi body performs the function of ~~cell secretion~~ cell secretion by secreting modified proteins.

- Sol 7) (d) Lysosomes contain hydrolytic enzymes which help in intracellular digestion.
- Sol 8) (a) Chloroplast is present in plant cells. Bacteria does not contain membrane bound organelles. So chloroplast will be absent in this given organism.
- Sol 9) (c) ER do not produce monosaccharides.  
 RER → protein synthesis  
 SER → Lipid & steroid hormone synthesis
- Sol 10) Refer page no. 6 { 5<sup>th</sup> pointer under subheading - functions of Nucleus }
- Sol 11) (c) The three major types of RNA (mRNA, rRNA & tRNA) are synthesised in a specialised region of the cell nucleus called nucleolus but are stored within the ribosomes.
- Sol 12) (b) Oil seeds are rich in lipid content, so SER will be more active in these as it performs the function of lipid metabolism.
- Sol 13) (b) In a plant cell, nucleus, mitochondria & chloroplast, they all contain ~~genetic~~ genetic material.
- Sol 14) (a) Refer page no. 5 and 6 { subheading → Nucleus }
- Sol 15) (c) Refer page no. 7 { subheading → Golgi Apparatus }