Short Answer Type Question - I

Q.1. Write two advantages of multicellularity to an organism.

Ans. Multicellularity results in producing division of labour amongst its cells and enhance the chances of survival.

Q. 2. Omnis cellula-e-cellula. Who gave this statement and what does it mean ?

Ans. Rudolf Virchow gave this statement. It means ‘’All cells come from cells. Every cell is born of previous cell, which was born of a previous cell. Life comes from life.’

Q. 3. What are the exceptions to Cell Theory?

Ans. (i) Viruses do not possess a cellular machinery. They consist of a nucleic acid (DNA and RNA) core surrounded by a protein sheath and are considered to be an organism.

(ii) The bodies of certain fungi are made up of protoplasm and nuclei.

(iii) RBCs and sieve tube cells continue to live without nucleus and other vital organelles.

(iv) Bacteria and blue-green algae do not have an organised nucleus. Their genetic material (DNA) is naked and the cell organelles are absent.

Q. 4. What are the disadvantages of multicellularity?

Ans. The disadvantages of multicellularity are:

(i) Specialized cells often lose the power of division, so sometimes injury is not repaired e.g., nerve cells.

(ii) Regeneration ability of multicellular organisms decreases with specialization.

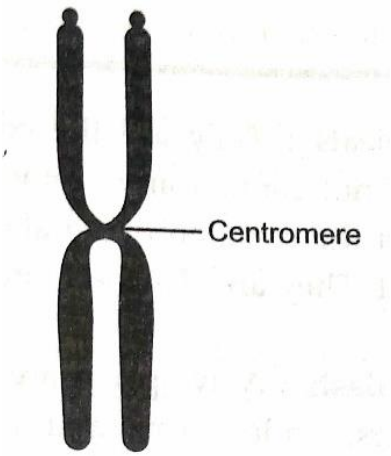
(iii) Specialized cells may lose vital functions in order to carry out specific activity e.g. RBCs, sieve tube cells.

(iv) Some unicellular organisms are immortal as their body gets distributed in their offspring’s.

Q. 5. Draw the diagram of the following types of chromosome.

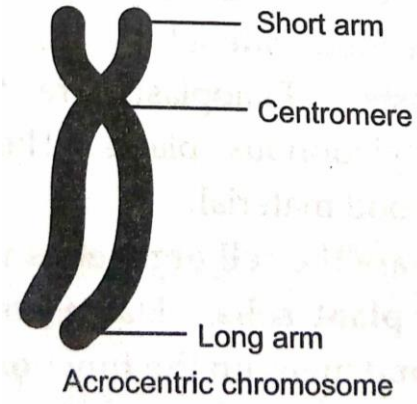
(i) Metacentric (ii) Acrocentric

Ans. (i)



Metacentric chromosome

(ii)



Acrocentric chromosome

Q. 6. Define the term isotonic solution.

Ans. Isotonic solution: The two solutions with the same osmotic concentration or pressure is termed as isotonic solution. There is no change in the cell osmotic concentration if the external solution is isotonic.

Q. 7. Differentiate between structure of flagella and centriole.

Ans. Structure of flagella: Nine plus two arrangement; sub tubules are in doublet.
Structure of Centriole : Nine plus zero arrangement; sub tubules are in triplet.

Q. 8. What is cell coat ? What is its main function ?

Ans. Cell coat : The plasma membrane in animals and some protista is not surrounded by the cell wall made up of cellulose but there is a thin layer of oligosaccharides called cell coat. Its main function is the protection of a plasma membrane.

Q. 9. Write any four functions of cell wall.

Ans. (i) It provides definite shape to cell and protects protoplasm.

(ii) It gives rigidity and support to the tissues of the plant.

(iii) It counter acts osmotic pressure and prevents bursting of plant cells due to endosmosis.

(iv) It takes part in offence and defence.

Q. 10. Mention two point of differences between SER and RER.

Ans.

S. No.	SER (Smooth endoplasmic reticulum)	RER (Rough endoplasmic reticulum)
(i)	Smooth endoplasmic reticulum does not have ribosomes and is composed of vesicles and tubules.	Rough endoplasmic reticulum have ribosomes on its outer surface and is composed of cisternae.
(ii)	It synthesises steroids and lipids. It is related to secretion.	Its main function is protein synthesis due to the presence of ribosomes on it.

Q. 11. Explain the structure and the function of plasmodesmata.

Ans. Plasmodesmata are cytoplasmic bridges between adjacent plant cells which develop in the minute pores of cell walls.

Functions:
(i) It forms a protoplasmic column called symplast.

(ii) Various substances can pass from one cell to another through plasmodesmata.

Q. 12. List the main function of chloroplast.

Ans. (i) Chloroplast are the centres of photosynthesis.

(ii) They liberate oxygen which is passed into the atmosphere.

(iii) These store fats in the form of plastoglobuli.

(iv) These help in maintaining the balance of gases in the atmosphere.

(v) They can change into the chromoplasts to provide colour to many flowers and fruits.

Q. 13. How do peroxisomes perform photorespiration ?

Ans. Peroxisomes perform photorespiration as they pick up glycolate from chloroplasts. The same is oxidised with the help of oxygen to produce glyoxylate. The later is changed to amino acid glycine and then to serine and CO_2 in mitochondria.

Q. 14. State functions of the following:

(i) Elaioplasts

(ii) Centrioles

(iii) Mesosome

(iv) Lysosome [KVS 2012-13]

Ans. (i) Elaioplasts : Thse are a kind of leucoplasts which are involved in storage of oils and fats.

(ii) Centrioles : Centrioles form the basal body of cilia or flagella and spindle fibres that give rise to spindle apparatus during cell division in animal cells.

(iii) Mesosome : It is formed by extension of plasma membrane into the prokaryotic cell, which help in cell wall formation, DNA replication and distribution of daughter cells.

(iv) Lysosome : They help in intracellular digestion, extracellular digestion, body defence, autophagy etc.

Q.15. Write a short note on spherosomes.

Ans. (i) Spherosomes are small membrane bound organelles which contain granular content rich in lipids.

(ii) They take part is storage and synthesis of fats and present abundantly in endosperm of oil seeds.