

CBSE TEST PAPER-01
CLASS - XI BIOLOGY
(Cell the Unit of Life)

General Instruction:

- All questions are compulsory.
 - Question No. 1 to 4 carry one marks each. Question No. 5 to 9 carry two marks each. Question No. 10 to 11 carry three marks each.
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1. Define totipotency?
2. Name two cell organelles which contain their own DNA?
3. Which cell organelle functions as “segregation apparatus”?
4. Give two examples of gram positive bacteria?
5. What is the significance of plasma membrane?
6. Differentiate between gram positive and gram negative bacteria?
7. Why lysosomes are called “suicidal bags”?
8. Explain the functions of centrosome?
9. What is meant by active transport across a cell membrane?
10. Describe the ultrastructure of a cillum or flagellum?
11. Distinguish between prokaryotic & eukaryotic cell?

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[ANSWERS]

1. Each vegetative plant cell has capacity to develop into a full plant. This characteristic of plant is called totipotency.
2. Mitochondria & chloroplast.
3. Endoplasmic Reticulum (ER)
4. Mycobacterium & clostridium tetani.
5. Significance of plasma Membrane:-
 - i) It forms the outer boundary of cell thus giving cell a definite shape
 - ii) It protects inner contents of the cell. It also gives toughness to cell
 - iii) It forms a molecular boundary between cell & its environment.
- 6.

GRAM-POSITIVE BACTERIA	GRAM-NEGATIVE BACTERIA
i) Their cell wall is only single layered & 100-200 A ⁰ thick.	i) Their cell wall consists of two layers & is 70-120 A ⁰ in thickness.
ii) They are stained by gram stain	ii) They are not stained by gram stain
iii) Tichoic acid present in cell wall	iii) It is absent
iv) Mesosomes prominent	iv.) Mesosomes less prominent
V)Retain vioet color after alcohol wash	V) Do not retain violet color after alcohol wash

7. Lysosomes are sac-like structures bounded by a single membrane which contains several digestive enzymes. These enzymes when released from lysosomes bring about breaks down of various cytoplasmic structures. It helps in digestion of food particles, other foreign bodies, old worn out organelles of cell often resulting in death of cell hence are referred as suicidal bags of cell.

8. Function of Centrosomes :-

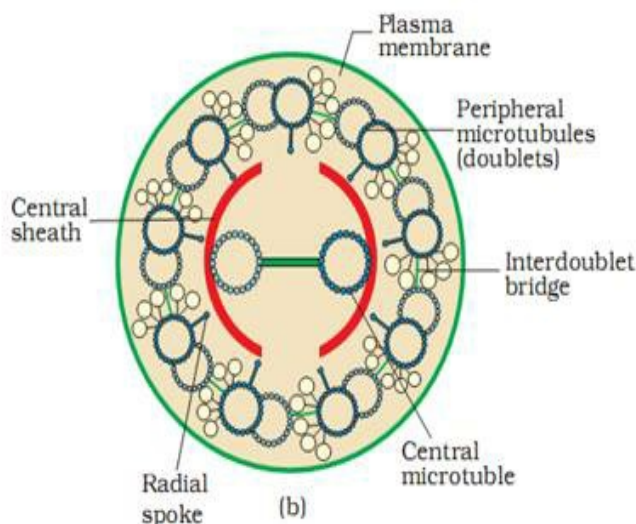
- a) Centrioles form basal bodies in non dividing cells
- b) At the time of cell division, they organize spindle and form asters.

c) They give rise to cilia and flagella.

d) Out of the two centrioles, the distal centrioles of sperms forms the axial filament or axoneme of sperm tail.

9. When molecules moves from a region of lower concentration to a region of higher concentration i.e. against concentration gradient, the process is known as active transport. The energy is required for the movement of molecules or ions in opposite direction. (eg. Na^+ - K^+ pump.)

10. Cilia & flagella have fundamentally the same structures. Each cilium or flagellum consists of eleven microtubules. These microtubules are arranged in two radii. Of these, nine are doublets. These are situated at the periphery & the remaining two are single microtubules situated in the centre. The microtubules are enclosed in a cytoplasmic matrix to form an axial filament. The outer tubules are 360 Å in diameter & are composed of two sub- units. The smaller of these have two arms in A- tubule & the smaller is B- tubule. These are found around the cylinder. The central microtubules are enclosed in a common sheath. From the centre arise nine secondary filaments. These are connected with tubules of the outer doublets.



11.

PROKARYOTIC CELL	EUKARYOTIC CELL
i) It lacks well organized nucleus. The genetic material is present in the form of nucleoid.	i) Nucleus is well developed.

ii) DNA is in circular form & is not packed into chromosomes.	ii) Linear DNA packed into chromosomes
iii) Nuclear membrane is lacking	iii) Nuclear membrane is present.
iv) Mitochondria absent	iv) Mitochondria present.
v) Chloroplast absent	v) Chloroplast is present in plant cell only.
vi) Membrane bound organelles are absent	vi) Membrane bound organelle are present.
vii) The ribosomes are of 70s type	vii).The ribosomes are of 80s type
viii) Cell wall consist of mucopolysaccharides	viii) Cell wall is absent in animal cells in plant cell, cell wall is made up of cellulose, hemicelluloses, lignin etc.
ix) Flagella are simple	ix) Flagella are specialized.