CBSE TEST PAPER-03

CLASS - XI BIOLOGY

(Cell the Unit of Life)

1. Which organelle is called the engine of the cell? Why it is called as engine of the cell?

2. What is mycoplasma? Are they useful or harmful to us..

3. Why is karyokinesis done at metaphase during mitosis? Specify.

4. Expand PPLO.

5. What are nuclear pores? State their functions?

6. Give differences between cell wall & cell membrane?

7. Which organelle is responsible for increasing the surface area of absorption in a cell? How?

8. What is mesosome in a prokaryotic cell? Mention the function that it performs?

9. “plasma membrane is described as” protein iceberg in sea of lipids”. why?

10. Mention three similarities & three differences between mitochondria & chloroplasts?

11. “Multicellular organisms have better survival than their unicellular counterpart” why?

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[ANSWERS]

1. Nucleaus which drives control and governs the entire function of the cell.

2. Mycoplasma is aerobic prokaryote. Cell wall is absent in them & they have a nucleoid.In addition to pneumonia caused by Mycoplasma pneumoniae, other Mycoplasma species cause infections in humans.(Pathogens)

3. Because metaphase chromosomes with two chromatids strands of each double chromosome held together at the centromere are clearly seen for nuclear material equal division.

4. Pleuropneumonia like organisms.

5. Nuclear envelope contains two parallel membranes & the thickness is 10-50 nm. Outer membrane has small pores called the nuclear pores formed by fusion of two membranes. These pores are the passages through which movement of RNA & protein molecules occurs in both directions between nucleus & cytoplasm.

6.

CELL WALL	CELL MEMBRANE
i) present in plant cell exclusively	i) present predominantly in animal cells
ii) Made up of cellulose	ii) Made up of proteins fats & water
iii) Thick & tough in nature	iii) Extremely thin & elastic in nature
iv) Uneven thickenings & Non Living	iv) No thickenings at edesg & Living
v) it is not selectively permeable	v) selectively permeable membrane

7. The endoplasmic reticulum is responsible for increasing the surface area for absorption. It

remains in the form of convulated tubule in the cytoplasm in the form of network. This provides more area for chemical reactions and increases the surface area of absorption.

8. Mesosome or Chondroid in a prokaryotic cell (Gram+Ve Bacteria like Azotobacteria - Nitrogen Fixing bacteria) is formed by extensions of plasma membrane into the cell it may be in form of vesicle, tubule or lamella. Their main function is to increase the surface area of plasma membrane to facilitate the cellular respiration.They help in cell wall formation. They help in replication of DNA & distribution of it to daughter cells. They help in secretion respiration, & increase plasma membrane surface area.

9. The plasma membrane as described by singer & Nicolson is of fluid mosaic model type. The lipid & proteins are arranged in a mosaic fashion. The matrix is highly viscous fluid of two layers of phospholipids molecules having two types of globular proteins i) peripheral or extrinsic proteins & ii) integral or intrinsic proteins. The proteins present superficially or tightly with the membrane are enzymatic can move across the matrix & help in the active & passive transport of ions through the membrane.Because cells reside in a watery solution (extracellular fluid), and they contain a watery solution inside of them (cytoplasm), the plasma membrane forms a circle around each cell so that the water-loving heads are in contact with the fluid, and the water-fearing tails are protected on the inside.

10. SIMILARITIES BETWEEN MITOCHONDRIA & CHLOROPLAST
i) Mitochondria & chloroplasts are semi-automous organelle & they possess their own DNA, RNA as well as ribosomes.

ii) They both develop & originate in the same way, formed by division of pre-existing organelle

iii) Both of them contain circular DNA.

DIFFERENCES BETWEEN MITOCHONDRIA & CHLOROPLAST
i) Mitochondria occurs in all eukaryotic cells while chloroplast are present only in plant cells.

ii) Pigments are absent in mitochondria but always present in chloroplast.

iii) The inner membrane of mitochondria are folded into cristae where as cristae are absent in chloroplast.

11. In unicellular organisms, there is no division of labour. The single cell of the organism is capable of performing all the vital activities of life respiration, movement, digestion & reproduction etc. Respiration, nutrition & excretion generally occur through general body surface no special organs for these are present in them because they are too small to need them.
In multicellular organisms all the body cells do not perform all the vital activities of life rather these cells play more specialized role in life activities eg. some cells of the body perform the function of movement some perform the function of digestion or respiration or removal of wastes from the body some cells perform the function of transport. These cells would perform no other function except for which they are specialized. The group of similar cells performing similar function is termed as tissues. So better mode of working together in an organised manner increases their potential to over come the challegnges theefore thier survival is facilitated and favoured by environment.