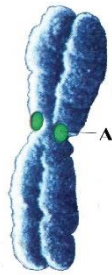


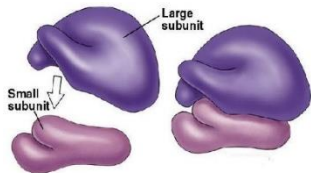
**Each question from 1 to 10 carries 1 score.**

- 1) Ribosomes are first observed by\_\_\_\_\_.
- 2) Name a prokaryotic organism without cell wall.
- 3) What are mesosomes?
- 4) Mention the site of rRNA synthesis.
- 5) The eukaryotic ribosomes are 80S. What does S stands for?
- 6) What are histones ?
- 7) Mention two cell organelles having its own ribosomes.
- 8) Name the scientist who coined the term Chromatin.
- 9) 'Plasma membrane is selectively permeable membrane'-Justify.
- 10) Diagram of a chromosome is given below. What is the structure marked as 'A'?

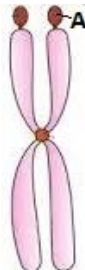


**Each question from 11 to 20 carries 2 scores**

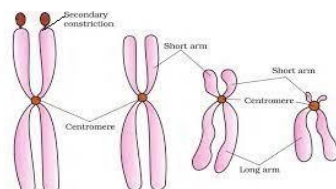
- 11) Identify the cell organelle given below. State its function.



- 12) Which are the different types of plastids based on the presence of pigments. Name the colourless plastid.
- 13) What are plasmids? Point out its significance.
- 14) Transport of the molecules across the plasma membrane takes place both by active and passive method.  
What is meant by active transport?
- 15) Bacteria vary greatly in shape and size. Mention the four basic shapes of bacteria.
- 16) Identify and comment the structure marked as A in the diagram given below.



- 17) Name an organelle which is present in both prokaryotic & eukaryotic cell.  
State its differences in prokaryotic and eukaryotic cell?
- 18) Observe the diagram given below and describe the different types of chromosomes based on the position of centromere.

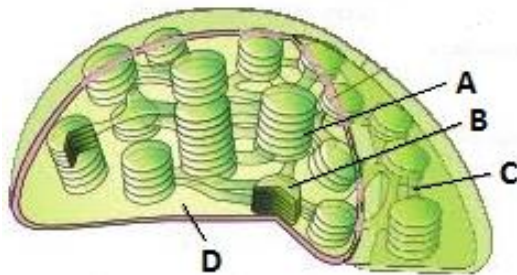


19) Which organelle is called as the ‘Power houses of the cell’? Why?

20) Mitochondria has some bacterial characteristics-Justify.

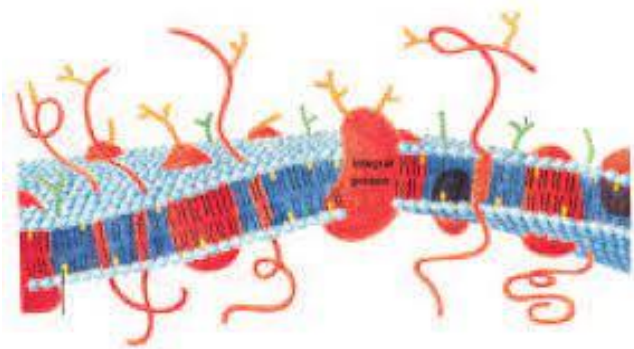
**Each question from 21 to 25 carries 3 scores.**

21) Identify the cell organelle. Label A, B, C & D.



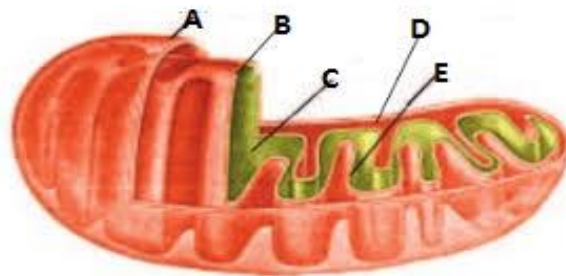
22) The given diagram represents a model of the Plasma membrane.

a) Name the model. b) Who proposed this model? c) Explain how this model helps in its functions.



23) Describe the structure and the different components present on the plasma membrane.

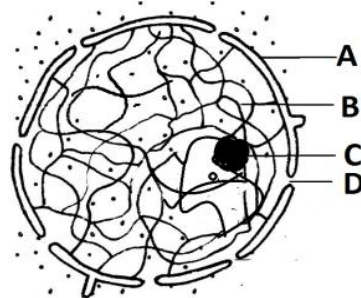
24) Identify the cell organelle given below. Label A, B, C, D and E.



25) Diagram of Nucleus is given below. A] Who first described the Nucleus?

B] Label A, B, C and D.

C] Comment on the function of D?



## ANSWERS

- 1) George Palade.
- 2) Mycoplasma [PPLO]
- 3) Mesosome is a special membranous structure of bacteria which is formed by the extensions of plasma membrane into the cell. These extensions are in the form of vesicles, tubules and lamellae. They help in cell wall formation, DNA replication and distribution to daughter cells. They also help in respiration and secretion processes.
- 4) Nucleolus.
- 5) Sedimentation coefficient (Svedberg's Unit)
- 6) Histones are the basic proteins seen in chromatin.
- 7) Chloroplast, Mitochondria
- 8) Flemming.
- 9) Plasma membrane allows only selective molecules to pass across it. So it is selectively permeable.
- 10) Kinetochore- It is the disc shaped structure present at the primary constriction region of a chromosome.
- 11) Ribosome. Function-Protein synthesis.
- 12) Chloroplasts, Chromoplasts and Leucoplasts . Leucoplasts is the colourless plastid.
- 13) In addition to the genomic DNA many bacteria have small circular DNA which are called plasmids. It has antibiotics resistance character.
- 14) Some ions or molecules are transported across the plasma membrane against their concentration gradient, i.e., from lower to the higher concentration. Such a transport is an energy dependent process, in which ATP is utilised and is called active transport. Eg : Na<sup>+</sup>/K<sup>+</sup> Pump.
- 15) Bacillus - rod like, Coccus - spherical, Vibrio – comma shaped and Spirillum - spiral.
- 16) A- Satellite.  
Some chromosomes have non-staining secondary constrictions at a constant location. This gives the appearance of a small fragment called the satellite.
- 17) Ribosome. The eukaryotic ribosomes are 80S while the prokaryotic ribosomes are 70S type.
- 18) Based on the position of the centromere, the chromosomes are of four types .  
Metacentric chromosome has middle centromere forming two equal arms of the chromosome.  
Sub-metacentric chromosome has centromere slightly away from the middle of the chromosome with one shorter arm and one longer arm.  
Acrocentric chromosome the centromere is situated close to its end forming one extremely short and one very long arm.  
Telocentric chromosome has a terminal centromere.
- 19) Mitochondria are the sites of aerobic respiration. They produce cellular energy in the form of ATP, hence they are called 'power houses' of the cell.
- 20) The matrix of mitochondria possesses single circular DNA molecule, a few RNA molecules, ribosomes (70S) and the components required for the synthesis of proteins. The mitochondria divide by fission.
- 21) Chloroplast A- Grana. B- Thylakoid. C- Stroma lamelle. D- Stroma.
- 22) a- Fluid mosaic model. b- Singer and Nicolson.  
c- According to this model, the quasi-fluid nature of lipid enables lateral movement of proteins within the overall bilayer. This ability to move within the membrane is measured as its fluidity. The fluid nature of the membrane is important for its functions like cell growth, secretion, endocytosis, cell division etc.
- 23) Plasma membrane is composed of lipids which are arranged in a bilayer.
  - The lipids are arranged with the polar head towards the outer sides and the hydrophobic tails towards the inner part.
  - It also possess protein and carbohydrate.
  - The membrane proteins are of two types ; Integral proteins and Peripheral proteins.
  - Peripheral proteins lie on the surface of the membrane.
  - Integral proteins are partially or totally buried in the membrane.
- 24) Mitochondria.  
A – Outer membrane, B- Inner membrane, C – Matrix, D – Inter membrane space, E – Crista.
- 25) A] Robert Brown. B] A- Nuclear membrane , B – Nucleoplasm , C- Nucleolus , D – Nuclear pore.  
C] Nuclear pores are the passages through which movement of RNA and protein molecules takes place in both directions between the nucleus and the cytoplasm.

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