1. Which of the following is not correct?
(a) Robert Brown discovered the cell.
(b) Schleiden and Schwann formulated the cell theory.
(c) Virchow explained that cells are formed from pre-existing cells.
(d) A unicellular organism carries out its life activities within a single cell.
Solution: (a) Robert Hooke discovered the celland Robert Brown discovered nucleus in the cell.

2. New cells generate from
(a) bacterial fermentation
(b) regeneration of old cells
(c) pre-existing cells
(d) abiotic materials.
Solution: (c)

3.Match the following.

Column I	Column II
(a) Cristae	(i) Flat membranous sacs in stroma
(b) Cisternae	(ii) Infoldings in mitochondria
(c) Thylakoids	(iii) Disc-shaped sacs in Golgi apparatus

Solution:
a - (ii); b - (iii); c - (i).

4. Which of the following is correct?
(a) Cells of all living organisms have a nucleus.
(b) Both animal and plant cells have a well defined cell wall.
(c) In prokaryotes, there are no membrane bound organelles.
(d) Cells are formed de novo from abiotic.
Solution:
(c) Mature mammalian erythrocytes and sieve tube cells of vascular plants lack nucleus. Animals lack cell wall and only cell membrane is present. Prokaryotes are unicellular organisms which lack nucleus and other membrane bound organelles. All cells arise from pre-existing cells.

5. What is a mesosome in a prokaryotic cell? Mention the functions that it performs.
Solution: Mesosome is a membranous structure in prokaryotic cell, which is formed by the extensions of the plasma membrane into the cell in form of vesicles, tubules and lamellae. Mesosomes are equal to mitochondria in eukaryotes, as they perform aerobic cellular respiration in prokaryotes. It helps in DNA replication and distribution of genetic material to daughter cells. Mesosomes also help in respiration, increase the surface area of the plasma membrane and enzymatic content and cell wall formation.

6. How do neutral solutes move across the plasma membrane? Can the polar molecules also move across it in the same way? If not, then how are these transported across the membrane?
Solution: Neutral solutes move across the membrane by the process of simple diffusion along the concentration gradient i.e., from higher concentration to the lower concentration. Polar molecules cannot pass through the nonpolar lipid bilayer, they require carrier proteip of the membrane to facilitate their transport across the membrane. In facilitated diffusion, molecules are transported along concentration gradient by help of ion channels and permeases and it does not involve energy expenditure (passive transport).

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