

Topic :- Cell the Unit of Life

- 1 **(b)**
In prokaryotic cell, DNA is naked, that is, without histones. DNA is usually circular. In addition to the genomic DNA, many bacteria have small circular DNA outside the genomic DNA. These are called plasmids
- 2 **(b)**
Golgi body originates from endoplasmic reticulum.
- 4 **(a)**
In bacteria (prokaryote), on the plasma membrane generally at mid point, there are present some circular coiled bodies called **mesosomes**, which contain respiratory enzymes like oxidases, dehydrogenase and hence, they help in respiration.
- 5 **(d)**
A biomembrane consist of lipids (20-79%) proteins (20-70%), carbohydrates (1-5%) and water (20%)
The lipid molecules are amphipathic or amphipathic, that is, they possess both polar hydrophilic (water loving) and non-polar hydrophobic (water repelling) ends
- 6 **(b)**
The **microfilaments** are formed mainly of protein actin. They have a role in cell motion, intracellular movements, changes in cell shape, cleavage and muscle contraction.
- 7 **(c)**
Viruses are an exception to cell theory. Viruses are acellular and do not have a cellular machinery. Even then they are considered to be organisms
- 8 **(d)**
Cell membrane (plasmalemma) is composed of proteins, lipids and some amount of carbohydrate. Membrane lipid is primarily phospholipid. It contain both polar and non-polar portion.
- 9 **(a)**
Quantasomes are the photosynthetic units present in the thylakoids of chloroplast. Each of

the quantasomes contain about 250-300 chlorophyll molecules.

- 10 **(b)**
The chemical substances found most abundantly in the middle lamella are released into the phragmoplast by Golgi complex. The Golgi complex synthesises polysaccharides which bring about formation of a cell plate between daughter nuclei during cytokinesis.
- 11 **(c)**
According to fluid mosaic model, proteins cannot undergo flip-flop movements in the lipid bilayer.
- 12 **(b)**
Enzyme **DNA ligase** joins the Okazaki fragments in correct sequence, during DNA replication.
- 13 **(b)**
Lysosomes are the single membrane bound cell organelles, which contain hydrolytic enzymes. These are also known as suicidal bags.
- 14 **(d)**
Unicellular organisms are capable of (i) independent existence, (ii) performing the essential functions of life. Anything less than a complete structure of a cell do not ensure independent living. Hence, cell is the fundamental structural and functional unit of all living organisms
- 15 **(c)**
A mitochondria that has its outer membrane removed is called mitoplast.
- 16 **(b)**
The actual values of sedimentation coefficients of eukaryotic ribosomes is 79-80S in fungi and 80S in mammals. The sedimentation coefficient of two subunits are 40S (small) and 60S (large)
- 17 **(d)**
Cell membrane is composed of lipids mainly. Later biochemical investigation clearly revealed that the cell membranes also possess protein and carbohydrate
- 18 **(a)**
Sigma factor is related to RNA polymerase.
- 19 **(c)**
The figures of cork cells as seen by Robert Hooke were published in the book *Micrographia*

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(a)

Robert Hooke coined the term 'cell' (1665). He thought about the cells, as something similar to veins and arteries of animals, and are filled with juices in living plants.

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ANSWER-KEY										
Q.	1	2	3	4	5	6	7	8	9	10
A.	b	b	a	a	d	b	c	a	a	b
Q.	11	12	13	14	15	16	17	18	19	20
A.	c	b	b	d	c	b	d	a	c	a

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