DPP
DAILY PRACTICE PROBLEMS

Class : XIth
Date :

Solutions

Subject : BIOLOGY
DPP No. : 10

Topic :- Cell the Unit of Life

1 **(b)**
Prokaryotic cells are generally smaller and multiply more rapidly than the eukaryotic cells

2 **(b)**
Animal cells contains non-membrane bound organelle called centriole, which helps in cell division

3 **(a)**
In prokaryotes, genetic material is basically naked.
In prokaryotes, additional small circular DNA entities called plasmids are present.
Plasmids carry additional specific factors like nitrogen fixation, resistance, fertility, etc.
DNA present as genetic material is naked and often called genophore, nuclear body or nucleoid

4 **(d)**
Transfer RNA (tRNA) or soluble RNA (sRNA) is the smallest (4S) which constitutes about 15% of the total. tRNA is also called adapter molecule because it helps in transferring amoni acids to ribosomal sites during polypeptide synthesis.

5 **(b)**
Protein synthesis takes place in ribosomes, which are attached to surface of endoplasmic reticulum by ribophorin-I and ribophorin-II. About 50 hydrolytic enzymes are found in the lysosome. They include proteases, nucleases, glycosidases, lipases phospholipases, phosphatases and sulphatases. All lysosomal enzymes are acid hydrolases and optimally active at pH-5.0.

6 **(b)**
Endoplasmic reticulum (ER) is of two types on the basis of presence or absence of ribosomes.
Rough ER: Ribosomes present, main function is synthesis of proteins.
Smooth ER: Ribosomes absent, main functions are lipid metabolism, detoxification.

7 **(b)**
Mitochondria is rich in catabolic enzymes.

8 **(b)**

DNA gyrase unwinds the DNA strands during DNA replication.

9 **(c)**

Schwan (1839), a British Zoologist, studies different types of animal cells and reported that cells had a thin outer layer. Which is today known as the 'plasma membrane'.
Based on his studies on plant tissues, he also concluded that the presence of a cell wall is a unique character of the plant cells. On the basis of this, Schwann proposed the hypothesis that the bodies of animals and plants are composed of cells and its products.
Schleiden and Schwann together formulated the cell theory. This theory however, did not explain as to how new cells were formed. Rudolf Virchow (1855) first explained that cells gets divided and new cells are formed from pre-existing cells (*Omnis cellula-e-cellula*).
He modified the hypothesis of Schleiden and Schwann to give the cell theory a final shape.
Cell theory as understood today is
(i) All living organism are composed of cells and products of cells
(ii) All cells arise from pre-existing cells

10 **(d)**

In eukaryotes, ribosomes are found in chloroplasts and mitochondria. In prokaryotes, ribosomes occur freely in the cytoplasmic matrix
In eukaryotic cells, RER possesses ribosomes attached to its membranes
Ribosomes occur in all living cells with the exception of mammalian erythrocytes or red blood corpuscles

11 **(d)**

Cell wall performs a number of functions
Cell wall not only gives shape to the cell and protects the cell from mechanical damage and infections, it also helps in cell to cell interaction and provides barrier to undesirable macromolecules

12 **(c)**

Single membrane cell organelles are known as microbodies *eg*, lysosomes, peroxisomes, glyoxysomes and spherosomes.

13 **(b)**

Middle lamella is a thin binding layer between the cell wall of adjacent plant cell. It is chemically formed of calcium and magnesium pectate.

14 **(a)**

In uniport, molecule moves across a membrane independent of other molecules. In symport, both molecules cross the membrane in the same direction. In antiport, they move in opposite directions.

15 **(d)**

Meselson and **Stahl** (1958) verified the semiconservative nature of DNA replication in a series of elegant experiments using isotopically labelled DNA and a form of isopycnic density gradient centrifugation.

16 **(a)**

Prokaryotes (bacteria and blue-green algae) are the most abundant organisms on earth. A prokaryotic cell does not contain a membrane-bound nucleus. Each prokaryotic cell is surrounded by plasma membrane. There is no subcellular organelles, only infolding of the plasma membrane called mesosomes and ribosomes are present.

17 **(b)**

The chloroplast is double membrane bound organelle, *i.e*., an outer and an inner membrane with an inter membrane space that is endored by stroma or stromal space. The stroma contains small cylinders in it, called grana. Each granum consists of disc-shaped membranous sacs, called thylakoids.

18 **(c)**

Ribosomes are present in both Protista and Monera. These are concerned with protein synthesis.

19 **(c)**

Cech *et al*, discovered ribozyme the RNA molecule having enzymutic properties.

20 **(b)**

In 1850, **Kolliker** for the first time seen mitochondria. Later on, **C Bends** coined the term mitochondria. These are the sites of cellular respiration, oxidative phosphorylation, synthesis of haeme protein cytochrome, myoglobin, etc.

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