

Topic :- Cell the Unit of Life

- 1 **(d)**
There are found total five nitrogenous bases in nucleic acids. Out of these **adenine, guanine** (purines) and **cytosine, thymine** (pyrimidines) are present in DNA, while RNA contains uracil in place of **thymine** (both pyrimidines) along with rest 3 similar to DNA.
- 2 **(c)**
Magnesium is required in united ribosomal subunits, in leaves, growing areas of root and stem protein synthesis hence, withdrawn from ageing.
- 3 **(b)**
Study of form, structure and composition of cells is called Cytology
- 4 **(c)**
Lysosomes are the organelles which contain acid hydrolases. All the enzymes do not occur in the same lysosome but there are different sets of enzymes in different types of lysosomes.
- 5 **(b)**
The smooth endoplasmic reticulum produces nearly all of the lipids required for the elaboration of new cell membranes, including both phospholipids and cholesterol. The major phospholipid is made up of phosphatidylcholine also called **lecithin**.
Lecithin maintains continuity between the water and lipid phases inside and outside the cell.
- 6 **(d)**
The cytoplasm of all eukaryotic cells is criss-crossed by a network of protein fibres that support the shape of the cell and anchor organelles to fixed locations. It is a dynamic system with three types of fibres – actin filaments, microtubule and intermediate filament.
- 8 **(b)**
Plant cell wall is mainly composed of cellulose. Other ingredients lignin, cutin, suberin, silica, minerals (*e.g.*, iron, calcium, carbonate) waxes, tannins, resins, gum, etc.
- 9 **(a)**

As per fluid mosaic model of plasma membrane, the cell membrane consists of a highly viscous fluid matrix of two layers phospholipid molecules. Ribosome mainly consists of *r* RNA and protein. Chromosome is made up of DNA and basic proteins, whereas nucleolus mainly consists of *r*RNA.

- 10 **(b)**
Endoplasmic reticulum (ER) is a membranous structure extending from nucleus to plasma membrane within the cytoplasm.
- 11 **(a)**
Pectin is the filler substance of the matrix of eukaryotic cells
- 12 **(c)**
In the nucleus, the chromatin material is found, which is an organisation of DNA and proteins. Mitochondria and chloroplast also possess extrachromosomal DNA, while DNA is absent in peroxisomes.
- 13 **(a)**
The fluidity of membranes in a plant in cold weather may be maintained by increasing the number of phospholipids with unsaturated hydrocarbon tails.
- 14 **(c)**
Total number of coils in a DNA molecule = 10.
We know that total number of nitrogen bases present in a coil = 20 (or 10 pairs).
Thus, total number of nitrogenous base is 200. Out of these, 30 are adenine thus, according to Chargaff's rule guanine should be 70 in number.
- 15 **(b)**
Cytology or cell biology is the branch of biology dealing with study of structure and function of a cell.
- 16 **(b)**
M J Schleiden and **T Schwann** (1838-39) proposed cell theory.
- 17 **(b)**
Pits present in the wall of plant cell help to produce a protoplasmic continuum, called symplast
- 18 **(b)**
Ribosomes are chemically composed of RNA and proteins (both occurring approximately in equal proportion). The RNA commonly formed ribosome is *r*RNA.

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(d)

DNA fragments can be rejoined under the appropriate renaturation conditions by using the enzyme **DNA ligase** to reform the missing phosphodiester linkages in each strand.

An exonuclease is an enzyme which degrades nucleic acids from ends, while an endonuclease is an enzyme which degrades nucleic acid by making internal cuts.

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(a)

A – Plasmodesmata

B – Rough Endoplasmic Reticulum

C – Golgi apparatus

D – Mitochondrion

E – Ribosomes

PE

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

PE