

(108)

SARDAR PATEL UNIVERSITY**B.Sc. (Bioinformatics) – Third Semester Examination (CBCS)**Friday, 1st January 2021

02:00 p.m. to 04:00 p.m.

US03CBNF22: Cell Biology**Total Marks: 70**

Note: (1) Figures to the right indicate marks.

(2) Draw a neat and labeled diagram, wherever necessary.

- Q. 1 Choose the most appropriate answer from the four alternatives given: [1 X 10=10]**
- (i). Which of the following cell organelles is called the powerhouse of the cell?
 (a) Nucleus (b) Lysosomes (c) Chloroplast (d) Mitochondria
- (ii). Which of the following cell organelles is called a suicidal bag?
 (a) Lysosomes (b) Golgi bodies
 (c) Cell membrane (d) Mitochondria
- (iii). Which of the following is a single membrane-bound organelle?
 (a) Vacuole (b) Golgi Apparatus
 (c) Endoplasmic Reticulum (d) All of the above
- (iv). In the plasma membrane, lipid molecules are arranged in _____.
 (a) Alternate (b) Scattered (c) Head parallel (d) Series
- (v). The plasma membrane is composed of _____.
 (a) Proteins (b) Lipids
 (c) Both proteins and lipids (d) Carbohydrates
- (vi). Fluid mosaic model was given by _____.
 (a) Robertson (b) Singer and Nicholson
 (c) Dave Donson (d) Schwann
- (vii). Barr body is the _____.
 (a) Active X chromosome (b) Inactive X chromosome
 (c) Active Y chromosome (d) Inactive Y chromosome
- (viii). Which is the longest phase of the cell cycle?
 (a) Interphase (b) M-phase (c) Leptotene (d) S-phase them
- (ix). Glycosidic bond in DNA is present between _____.
 (a) Sugar and base (b) Base and phosphate (c) Base and base (d) Phosphate and sugar
- (x). A amino acid binds with tRNA by _____.
 (a) Hydrogen bond
 (b) Phosphodiester bond
 (c) Amino acyl bond
 (d) Glycosidic Bond

Q.2 Fill in the Blanks and True or False questions:

[1 x 8=08]

- (i). Ribosomes in prokaryotic cells are 70s . . . (True/False)
- (ii). According to Robertson, thickness of lipid zone in the cell membrane ranges from 10-20 Å. (True/False)
- (iii). For active transport by membrane requires _____ proteins.
- (iv). The fundamental structure of the membrane is the phospholipid bilayer. (True/False)
- (v). _____ chromosomes are also called diplotene chromosomes.
- (vi). The divisor of cytoplasm is known as synapsis. (True/False)
- (vii). DNA was proved to be the genetic material in the Hershey-Chase experiment. (True/False)
- (viii). Messenger RNAs are found in the nucleolus. (True/False)

Q.3 Short answer questions (Attempt any 10 out of 12).

[2 x 10=20]

- (i). Write various functions of chloroplast.
- (ii). Differentiate between prokaryotic cell and eukaryotic cell.
- (iii). Write the salient features of mitochondria.
- (iv). How cell recognition take place in eukaryotic membrane?
- (v). What is vesicular transport?
- (vi). Write the salient features of fluid mosaic model.
- (vii). What do you mean by gametogenesis?
- (viii). Write a short note on Lampbrush chromosome.
- (ix). What is Barr body?
- (x). Write the functions of m RNA.
- (xi). Describe the four properties of DNA.
- (xii). Write a short note on polynucleotide.

Q.4 Long answer questions (Attempt any 4 out of 8).

[8 x 4=32]

- (i). Give a detail account on ultra structure and function of endoplasmic reticulum.
- (ii). Give an account on structure of plant cell and its components.
- (iii). Write a detail note on Danielli –Davson model.
- (iv). Describe in detail about fluidity of the membrane.
- (v). Give a detail account on structure of chromosomes.
- (vi). Write a note on stages of mitosis.
- (vii). Give a detail account on Griffith's experiment on transformation.
- (viii). Discuss in detail about types and functions of RNA.

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