[51] Seat No :_____

No. of Printed Pages: 2

SARDAR PATEL UNIVERSITY

B.Sc. (Bioinformatics) – Third Semester Examination (CBCS)
Wednesday, 27th November 2019
02:00 p.m. to 5:00 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:** [10]

i. **Which of the following is the typical feature of a prokaryotic cell?**

(a) Absence of DNA
(b) Absence of nucleus
(c) Absence of RNA
(d) Absence of cell wall

ii. **Ribosomes in prokaryotic cells are .....**

(a) 80S (b) 70S (c) 60S +40S (d) 50S +40S

iii. **In mitochondria, cristae act as sites for .....**

(a) Protein synthesis
(b) Phosphoryaltion of flavoproteins
(c) Breakdown of macromolecules
(d) Oxidation reduction reaction

iv. **The plasma membrane is composed of .....**

(a) Proteins
(b) Lipids
(c) Carbohydrates
(d) Both proteins and lipids

v. **According to Robertson, thickness of lipid zone in the cell membrane ranges from**

(a) 10-20 Å
(b) 35-50 Å
(c) 50-60 Å
(d) 25-35 Å

vi. **Which of the following layer is present nearest to plasma membrane in plant cell**

(a) Secondary wall
(b) Middle lamella
(c) Primary wall
(d) Tonoplast

vii. **Synthesis of RNA and proteins take place in .....**

(a) M phase (b) S phase (c) G1 phase (d) G2 phase

viii. **Chromatin is composed of .....**

(a) DNA (b) DNA and proteins (c) DNA, RNA and proteins (d) None of these

ix. **In Griffith's experiment which of the following strains of pneumococci was isolated from dead mice?**

(a) Live rough cells (b) Dead rough cells (c) Live smooth cells (d) Dead smooth cells

x. **What was proved to be the genetic material in the Hershey-Chase experiment?**

(a) DNA (b) Protein (c) Both (a) and (b) (d) Phage

P.T.O.

Q.2 **Answer any TEN from the following:** [20]

a) Differentiate between prokaryotic cell and eukaryotic cell.
b) Write the various functions of mitochondria.
c) Write the salient features of chloroplast.
d) Write a short note on fluidity of the membranes
e) Write the functions of plasma membrane in plants.
f) What is facilitated diffusion?
g) Define chromosome.
h) Write a short note on G1 and S phase of cell cycle.
i) What is Barr body?
j) Write the functions of RNA.
k) Differentiate between nucleoside and nucleotide.
l) Describe the four properties of DNA.

Q.3 **(a)** Give an account on structure of plant cell and its components. [06]

(b) Write a note on functions of nuclear envelope. [04]

OR

Q.3 **(a)** Discuss in detail about structure and functions of Endoplasmic reticulum. [06]

(b) Briefly discuss about the ultra structure of chloroplast. [04]

Q.4 **(a)** Write a detail note on Danielli-Davson model of plasma membrane. [06]

Q.4 **(b)** What do you mean by cell recognition in eukaryotic membrane? [04]

OR

Q.4 **(a)** Discuss in detail about membrane transport by active and passive transport. [06]

Q.4 **(b)** Give an account on neurotransmission and gated channels. [04]

Q.5 **(a)** Give a detail account on structure of chromosomes. [06]

Q.5 **(b)** Write a note on significance of mitosis. [04]

OR

Q.5 Discuss in detail about various stages of meiosis and its significance. [10]

Q.6 **(a)** Describe the structure and function of m RNA. [06]

Q.6 **(b)** Write a note on biological properties of DNA. [04]

OR

Q.6 Give a detail account on Griffith's experiment on transformation. [10]

**********X**********