AT – 288

First Semester B. Sc. (Part – I) Examination

1 S – BIOTECHNOLOGY

(Cell Biology and Biomolecules)

P. Pages : 4

Time : Three Hours] [Max. Marks : 80

Note : (1) **All** questions are compulsory.
(2) Draw well labeled diagrams wherever necessary.

1. (A) Fill in the blanks :—

(i) The cell theory is proposed by _____.

(ii) Codons are present on _____.

(iii) The power house of cell is _____.

(iv) _____ is the equational cell division. 2

(B) Choose correct alternative :—

(i) Anticodons are present on _____.

(a) DNA (b) mRNA

(c) tRNA (d) rRNA

(ii) Linear DNA is present in :

(a) Mitochondria

(b) Chloroplast

(c) Bacteria

(d) Cytoplasm of Eukaryotic cell

(iii) Crossing over takes place during :

(a) Leptotene (b) Zygotene

(c) Pachytene (d) Diakinesis

(iv) Quantasomes are present in :

(a) Chloroplast

(b) Mitochondria

(c) Bacteria

(d) Nucleus 2

(C) Answer in **One** sentence :—

(i) Define Enzyme.

(ii) Name the building blocks of proteins.

(iii) Give the number of H – bonds in between G and C.

(iv) Who discovered DNA ? 4

2. Explain :

(a) Structure of Bacteria. 4

(b) Miller's experiment. 4

(c) Concept of cell theory. 4

OR

(d) Oparin–Haldane theory. 4

(e) RNA world. 4

(f) Exceptions to cell theory. 4

3. (a) Give biological importance of Lipids. 4

(b) Explain Hydrophilic and Hydrophobic groups in Biomolecules. 4

(c) Give Importance of Biomolecules. 4

OR

(d) Give chemical structures of Glucose and Sucrose. 4

(e) Explain the general properties of Carbohydrates. 4

(f) Explain general properties of Organic molecules. 4

4. Describe double Helical structure of DNA.

OR

Describe in detail primary, secondary and tertiary structures. 12

5. Describe the structure and functions of chloroplast.

OR

Describe the structure and functions of Endoplasmic Reticulum. 12

6. Explain :

(a) Diffusion. 4

(b) Cell lysis of Mechanical method. 4

(c) Density gradient centrifugation. 4

OR

(d) Active transport. 4

(e) Cell lysis by Enzymatic method. 4

(f) Differential centrifugation. 4

7. Describe the following :

(a) Cell junction. 4

(b) Metaphase in Mitosis. 4

(c) Cancer. 4

OR

(d) Cell–Cell signaling. 4

(e) Interphase in cell cycle. 4

(f) Role of Microtubules and Microfilaments in cell locomotion. 4