AU–35

B.Sc. (Part–I) Semester–I Examination

1S : BIOTECHNOLOGY (R/V)

(Cell Biology and Biomolecules)

Time : Three Hours] [Maximum Marks : 80

N.B. :— (1) All questions are compulsory.

(2) Draw well labelled diagrams wherever necessary.

1. (A) Fill in the blanks :

(i) Sucrose is made up of glucose and _____.

(ii) _____ proposed model of DNA.

(iii) Function of ribosome is _____.

(iv) _____ proposed fluid mosaic model. 2

(B) Choose correct alternative :

(i) Nitrogenous bases of RNA are :

(a) AGCT (b) AGCU

(c) CAMP (d) AUGU

(ii) Glucose is an example of :

(a) Monosaccharide (b) Disaccharide

(c) Dipeptide (d) Polypeptide

(iii) Exchange of genetic material takes place during :

(a) Diplotene (b) Leptotene

(c) Zygotene (d) Pachytene

(iv) Which one of the following is the longest phase ?

(a) Prophase-II (b) Metaphase-II

(c) Prophase-I (d) Metaphase-I 2

(C) Answer in **one** sentence :

(i) What are polysaccharides ?

(ii) Define essential amino acids.

(iii) What is the long form of dAMP ?

(iv) Which bond is involved in joining of amino acids ? 4

2. Describe :

(a) Endosymbiont theory. 4

(b) Cell theory and exceptions to cell theory. 4

(c) Oparin-Haldane hypothesis. 4

OR

(d) RNA world. 4

(e) Cell as basic unit of living system. 4

(f) Properties of first cell. 4

3. Describe :

(a) Aldoses and Ketoses. 4

(b) Biological importance of lipids. 4

(c) Glycerophospholipids with examples. 4

OR

(d) Biological importance of carbohydrates. 4

(e) Homopolysaccharides with examples. 4

(f) Properties of triglycerides. 4

4. Describe :

(a) Explain secondary structure of proteins. 4

(b) Differentiate between DNA and RNA. 4

(c) Give chemical structures of pyrimidine bases. 4

OR

(d) Classify amino acids on the basis of side chain 'R'. 4

(e) Briefly explain structure of DNA. 4

(f) Classify proteins on the basis of functions. 4

5. Describe in detail Singer and Nicolson model of plasma membrane. 12

OR

Describe in detail structure and functions of mitochondria. 12

6. Explain in detail active and passive transport across the membrane. 12

OR

Describe in detail various methods of cell lysis. 12

7. Explain :

(a) Role of microtubules in cell locomotion. 4

(b) Schematic representation of cell cycle. 4

(c) Properties of stem cells. 4

OR

(d) Cell-cell signalling. 4

(e) Prophase-I of meiosis. 4

(f) Role of cell cycle in cancer. 4