(i) Printed Pages : 3 Roll No. .....

(ii) Questions : 9 Sub. Code : 0970

Exam. Code : 0034

B.Sc. (Hons.) Biotechnology 2nd Semester

(2054)

CELL BIOLOGY

Paper : BIOT-205-T

Time Allowed : Three Hours] **[Maximum Marks : 67**

Note :— Attempt ***five*** questions in all by selecting ***one*** question from each unit. Section A is compulsory. All questions carry equal marks except question no. 1. Draw diagrams wherever necessary.

SECTION—A

(Compulsory Question)

1. Write in brief :

(1) What are PPLOs ? 2

(2) Name the scientists who gave the modern cell theory. 2

(3) What are integral membrane proteins ? 2

(4) What are lysosomes ? 2

(5) Euchromatin and heterochromatin. 3

(6) Totipotent and multipotent cells. 2

(7) What are permeases ? 2

UNIT—I

2. (a) Mention the broad classification of various eukaryotic cell types and describe the ultra structure of plant cell. 7

   (b) Describe the detailed structure of mitochondria and how is it different from chloroplast ? 6

3. (a) Discuss the different levels of organization of tissue, organ and organism of genetically similar cells. 7

   (b) Describe the detailed structure of nucleus and its various components. 6

UNIT—II

4. (a) What type of transport takes place through ATPase pumps ? Describe with the help of Na^+/K^+ pump and give its significance. 7

   (b) Discuss the process of endocytosis and exocytosis with examples in eukaryotes and prokaryotes. 6

5. (a) Describe the ATP dependent proton pumps. Where do they exist and what are their functions ? 7

   (b) What is co-transport system ? How do channel proteins work co-transporters ? 6

UNIT—III

6. (a) Discuss the structural organization of chromatids and their composition. 7

   (b) Describe the structure of polytene chromosome and mention why it is called special chromosomes. 6

7. (a) Discuss the various types of banding of chromosomes and mention the significance of each type of banding. 8

(b) Mention the flagellar and ciliary movements in both eukaryotic and prokaryotic cells. 5

UNIT—IV

8. (a) Define the various types of stem cells found in the human body. How are adult stem cells different from embryonic stem cells ? 7

(b) What are umbilical cord stem cells and how are they important in medical treatment ? 6

9. (a) Differentiate between totipotent, pleuripotent and multipotent stem cells and where are they found naturally in human body and what are their significance in medicine ? 8

(b) Discuss the major ethical issues related to embryonic stem cells. 5