(i) Printed Pages : 3

(ii) Questions : 9

Roll No. .....

Sub. Code : 0 9 7 0

Exam. Code : 0 0 3 4

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

(2053)

# CELL BIOLOGY

Paper : BIOT-205-T

Time Allowed : Three Hours] [Maximum Marks : 67

**Note :—** Attempt *five* questions. Question No. I is compulsory. Attempt *one* question each from Units I—IV. All questions carry equal marks except compulsory question.

I. Explain in brief the following :—

(a) Exceptions to the cell theory.

(b) Different level of organizations in animals.

(c) Nucleolus.

(d) Permeases.

(e) Peroxisomes and lysosomes.

(f) Biochemical composition of cell.

(g) Telomere and centromere.

(h) Totipotent and multipotent cells.

(i) Umbilical cord stem cell.

(j) Symport and antiport. $10 \times 1.5 = 15$

## UNIT—I

II. (a) Discuss in brief the process of artificial creation of cell.

(b) Explain structure of typical bacterial cell with suitable diagram. 7,6

III. (a) Explain the structure of nuclear pore complex with suitable diagram.

(b) Describe the structure and basic functions of ribosome. 7,6

## UNIT—II

IV. (a) Discuss Sodium-Potassium exchange pump. Describe its mechanism with the help of suitable diagram.

(b) What is cotransport ? Explain symport and antiport with one suitable example of each. 7,6

V. (a) Explain the process of phagocytosis with suitable diagram.

(b) Discuss entry of toxins into cell with suitable diagram. 7,6

## UNIT—III

VI. (a) Discuss structural organization of nucleosome with suitable diagram.

(b) What are special chromosomes ? Discuss the structure of polytene chromosomes. 7,6

VII. (a) Discuss the mechanism of amoeboid locomotion.

(b) What are chromatids and chromosome ? Classify chromosomes on the basis of the position and number of centromeres. 7,6

## UNIT—IV

VIII. (a) What are stem cells ? Give classification of stem cells on the basis of their differentiation potential and their origin.

(b) Describe various applications of stem cell in medicines. 7,6

IX. (a) What are embryonic stem cells ? Discuss key advantages and disadvantages of embryonic stem cells.

(b) Discuss various ethical issues related to stem cell technology. 7,6