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

(ii) Questions : 9 Sub. Code : 0 5 7 3

Exam. Code : 0 0 0 6

B.A./B.Sc. (General) 6th Semester

(2054)

BIOTECHNOLOGY (Elective)

Paper : Environmental and Fermentation Biotechnology

BIOT-Elect-Sem.-VI-T

Time Allowed : Three Hours] [Maximum Marks : 75

Note :— (1) Attempt *two* questions from Section A.

(2) Attempt *two* questions from Section B.

(3) Section C is compulsory.

SECTION—A

1. Write short notes on the following :

   (a) Renewable and non-renewable resources.

   (b) Methanogenic bacteria in biogas production.

   (c) Photosynthetic pigments for energy. 5×3

2. (a) What is meant by gasohol and how can it be used as fuel ?

   (b) Write short note on Microbial hydrogen production and its significance. 7,8

3. (a) Explain mechanism of action of Bacillus thuringiensis insecticidal toxins and their use in the control of insect pests.

(b) How microbes help in enrichment of ores ? 8,7

4. (a) Explain the approaches used for biological control of insect pests.

(b) Write short note on microbial degradation of xenobiotic compounds. 8,7

SECTION—B

5. (a) What is meant by microbial strain improvement ? Explain one method in detail.

(b) Why preservation of microorganism is needed ? How lyophilization helps in preservation ? 8,7

6. Write short notes on the following :

(a) Carbon and nitrogen sources for fermentation media.

(b) Significance of sterilization of nutrient medium. 8,7

7. Explain the following :—

(a) Gel filtration chromatography

(b) Two phase aqueous separation. 7,8

8. (a) Explain two methods of immobilization of cells and enzymes.

(b) Draw well labelled diagram of fermenter and give functions of major components. 8,7

SECTION—C

9. Explain the following :—

(a) Fossil fuels and their significance

(b) Conversion of sugar to ethanol

(c) Biopesticide

(d) Biofertilizers

(e) Primary and secondary metabolites

(f) Downstream process

(g) Two methods of cell disruption

(h) Ultrafiltration

(i) Continuous culture

(j) Antifoaming agents. 1.5×10