

Fifth Semester B. Sc. Examination

MICROBIOLOGY

Paper - II

Molecular Biology and Bioinstrumentation

Time : Three Hours]

[Max. Marks : 50

- N. B. : (1) All questions are compulsory and carry equal marks.
(2) Draw well labelled diagrams wherever necessary.

1. (a) Explain various components of Lac operon. 5
(b) Describe extragenic suppression. 5

OR

- (c) Write a note on alkylating agents and structural analogues. 5
(d) Explain mis-sense and non-sense mutations. 5
2. (a) Give a brief account of transposons. $2 \frac{1}{2}$
(b) Explain Lederberg and Tatum experiment. $2 \frac{1}{2}$
(c) Define transformation and describe Griffith experiment. $2 \frac{1}{2}$
(d) Write a note on specialized transduction. $2 \frac{1}{2}$

OR

- (e) Explain homologous recombination. $2 \frac{1}{2}$

(f) Diagrammatically explain conjugation between F^+ and F^- cell. $2 \frac{1}{2}$

(g) Describe the process of uptake of DNA during transformation. $2 \frac{1}{2}$

(h) Write a note on generalized transduction. $2 \frac{1}{2}$

3. Discuss various components of UV-visible spectrophotometer and draw ray diagram.

OR

Describe agarose gel electrophoresis. 10

4. Write in detail on gel filtration chromatography and give its application.

OR

Describe thin layer chromatography. 10

5. Solve any Ten questions :—

(i) What is silent mutation ? 1

(ii) Give two examples of physical mutagens. 1

(iii) Define recon. 1

(iv) What is prophage DNA ? 1

(v) Define episome. 1

(vi) What is synapsis ? 1

(vii) What is SDS ? 1



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| (viii) What is Svedberg unit ? | 1 |
| (ix) State Beer Lambert's law. | 1 |
| (x) What is cationic exchanger ? | 1 |
| (xi) What is HPLC ? | 1 |
| (xii) Give the use of scientillation counter. | 1 |