TKN/KS/16–5896

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 diagram wherever necessary.

1. Discuss in detail Lac Operon. 10

OR

Describe various types of induced mutations. 10

2. What is bacterial conjugation ? Describe the process in bacteria. 10

OR

Describe in detail Bacterial transformation. 10

3. (a) State Beer-Lambert's Law. Give limitation of Beer's law. 5

(b) Enlist the types of centrifuge and describe any one type. 5

OR

(c) Define electrophoresis. Discuss principle of agarose gel electrophoresis. 5

(d) Explain density gradient centrifugation. Discuss the use of caesium chloride in this technique. 5

4. (a) Give the principle of thin layer chromatography. 2½

(b) Explain the principle involved in ion-exchange chromatography. 2½

(c) What is isotopic tracer technique ? 2½

(d) Write a note on GM counter. 2½

OR

(e) State the principle of HPLC. 2½

(f) Enlist applications of isotope tracer technique. 2½

(g) Write a short note on principle involved in mass spectrometry. 2½

(h) Explain briefly how measurement of radioactive isotope can be done using scintillation counter ? 2½

5. Answer any **Ten** :—

(i) What is cistron ? 1

(ii) Define intragenic suppression mutation. 1

(iii) What is tautomeric shift ? 1

(iv) Define transposable genetic element. 1

(v) What is specialized transduction ? 1

(vi) What is abortive transduction ? 1

(vii) What is the use of sodium dodecyl sulphate in electrophoresis ? 1

(viii) What is monochromator ? 1

(ix) What is the full form of RCF ? 1

(x) What is gel permeation ? 1

(xi) Why name is given gel Ritration chromatography ? 1

(xii) Give the names of any two stable isotopes. 1