NKT/KS/17/5181

Bachelor of Science (B.Sc.) Semester–V (C.B.S.) Examination

MICROBIOLOGY

(Molecular Microbiology and Bioinstrumentation)

Compulsory Paper—2

Time : Three Hours] [Maximum Marks : 50

N.B. :— (1) All questions are compulsory and carry equal marks.

(2) Draw diagrams wherever necessary.

1. Describe Lac operon in detail. 10

OR

Describe induced mutations with suitable examples. 10

2. Describe in detail transformation in prokaryotes. 10

OR

Describe in detail generalized transduction. 10

3. (a) State the laws of absorption of light and derive Beer-Lambert's equation. 5

(b) Discuss the applications of UV-visible spectroscopy. 5

OR

(c) Enlist the types of centrifuges and describe analytical centrifuges. 5

(d) Describe the types of gels used in electrophoresis. 5

4. (a) Discuss the applications of thin layer chromatography. 2½

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

(c) Write a note on HPLC. 2½

(d) Describe scintillation counter. 2½

OR

(e) Give the principle of gel filtration chromatography. 2½

(f) Write a note on GM counter. 2½

(g) Describe the principle of thin layer chromatography. 2½

(h) Write a note on Mass spectrometry. 2½

5. Solve **any ten** :

(i) What is recon ? 1

(ii) What is split gene ? 1

(iii) What are spontaneous mutations ? 1

(iv) What are F^+ cells ? 1

(v) What are Hfr cells ? 1

(vi) Name the scientist who discovered transposable element. 1

(vii) What is Svedburg unit ? 1

(viii) What is bathochromic shift ? 1

(ix) What is buoyant density ? 1

(x) Name any two radioactive isotopes. 1

(xi) What is half-life of isotope ? 1

(xii) Define partition coefficient. 1