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

MOLECULAR BIOLOGY AND BIOINSTRUMENTATION

Compulsory Paper—2

(Microbiology)

Time : Three Hours] [Maximum Marks : 50

N.B. :— ALL the questions are compulsory and carry equal marks.

1. (a) Describe positive control system of Lac Operon. 5
   (b) Describe frame-shift mutations. 5

OR

   (c) Explain chemical mutagens that caused deamination of DNA base. 5
   (d) Explain intragenic suppression. 5

2. Describe bacterial conjugation. 10

OR

   Explain in detail generalised transduction. 10

3. (a) Give Beers Law of absorption. 2½
   (b) Give applications of spectrophotometry. 2½
   (c) How agarose gel is prepared ? 2½
   (d) Draw diagram of any electrophoretic apparatus. 2½

OR

   (e) Give limitations of Beer's law. 2½
   (f) Explain principle of ultra centrifuge. 2½
   (g) Give applications of gel electrophoresis. 2½
   (h) Give principle of density gradient centrifuge. 2½

4. Give principle, working and applications of thin layer chromatography. 10

OR

   Give principle and working of GM counter and Scintillation counter. 10

5. Answer any **TEN** (**1** mark each) :
   (i) Define recon. 1
   (ii) What is silent mutation ? 1
   (iii) Name any two non-sense codons. 1
   (iv) What is competence ? 1
   (v) What does λdg stand for ? 1
   (vi) What is prototroph ? 1
   (vii) What is a cuvette ? 1
   (viii) Give one application of analytical centrifuge. 1
   (ix) What is OD ? 1
   (x) What is long form of HPLC ? 1
   (xi) Give one application of GM counter. 1
   (xii) Name the gel system used in gel filtration chromatography. 1