NKT/KS/17/5165

Bachelor of Science (B.Sc.) Semester—IV (C.B.S.) Examination

BIOTECHNOLOGY

(Biostatistics and Biophysical Techniques—II)

Paper—II

Time : Three Hours] [Maximum Marks : 50

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

1. What is electrophoresis ? Explain various factors affecting electrophoretic mobility. 10

OR

Discuss various types of gels used in electrophoresis. 10

2. Describe the principle and applications of isoelectric focussing. 10

OR

(a) Describe the determination of molecular weight of proteins by SDS-PAGE. 5

(b) Describe the technique of pulsed-field gel electrophoresis. 5

3. (a) Define Radioactive isotopes. Briefly explain rate of radioactive decay. 2½

(b) Draw a well labelled diagram of Geiger-Muller Counter. 2½

(c) Describe the Falling Drop method for deuterium measurement. 2½

(d) Give the applications of isotopes in distribution studies. 2½

OR

(e) Explain the basic principle of Scintillation Counters. 2½

(f) Write a note on Cerenkov radiation. 2½

(g) Give advantages and limitations of tracer technique. 2½

(h) What is the role of isotopes in metabolic studies ? 2½

4. Describe density gradient centrifugation. Give its applications. 10

OR

Write notes on each of the following :

(a) Mean 2½

(b) Median 2½

(c) Mode 2½

(d) Standard Deviation. 2½

5. Answer any **ten** of the following :

(i) Give any one advantage of gel electrophoresis. 1

(ii) Give any one application of paper electrophoresis. 1

(iii) What are solubilizers ? 1

(iv) What is the role of SDS in SDS-PAGE ? 1

(v) What is isoelectric point ? 1

(vi) What are Ampholytes ? 1

(vii) What are stable isotopes ? 1

(viii) Define “Curie”. 1

(ix) What is meant by autoradiography ? 1

(x) What is RCF ? 1

(xi) Define Svedberg Unit. 1

(xii) What is standard error ? 1