

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