

Bachelor of Science (B.Sc.) Semester—IV Examination
BIO-CHEMISTRY (Biophysical and Biochemical Techniques)
Optional Paper—II

Time : Three Hours]

[Maximum Marks : 50

- N.B. :—** (1) All questions are compulsory and carry equal marks.
 (2) Draw diagrams wherever necessary.

1. Describe in detail the principle, technique and applications of paper electrophoresis. 10

OR

- (a) Describe in brief various types of gels used in electrophoresis. 5
 (b) Give an account of high voltage electrophoresis. 5

2. Describe in detail the principle, technique and applications of SDS-PAGE. 10

OR

- (a) Describe applications of Disc-Gel electrophoresis.
 (b) Explain principle of iso-electric focussing.
 (c) Write a short note on ELISA.
 (d) Write a short note on immunodiffusion. $2\frac{1}{2} \times 4 = 10$

3. Give detailed account on GM Counter. 10

OR

- (a) Describe in brief the principle of solid scintillation counter.
 (b) Write a short note on mass spectrometry.
 (c) Explain clinical applications of isotopes.
 (d) Give brief idea about radiation dosimetry. $2\frac{1}{2} \times 4 = 10$

4. Give detailed account of analytical centrifuges. 10

OR

Describe different types of centrifuges. 10

5. Solve any **TEN** :

- (i) What are solubilizers ?
 (ii) Define molecular exclusion limit of gel.
 (iii) Name any one factor affecting electrophoretic mobility.
 (iv) What is meant by immunoelectrophoresis ?
 (v) Name the scientist who discovered the technique of iso electric focussing.
 (vi) What is carrier ampholyte ?
 (vii) Give any one example of stable isotopes.
 (viii) Define Becquerel.
 (ix) Name any one isotope used in metabolic studies.
 (x) What is meant by Svedberg constant ?
 (xi) What is RCF ?
 (xii) At what 'g' value, the mitochondrial fraction of the cell is pelleted ? $1 \times 10 = 10$