

Bachelor of Science (B.Sc.) Semester-IV (C.B.S.) Examination**BIO-CHEMISTRY****(Biophysical and Biochemical Techniques)****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 slab-gel electrophoresis. 10

OR

- (a) How does voltage affect electrophoretic mobility ? 2½
 (b) Write a note on cellulose acetate electrophoresis. 2½
 (c) Give brief description of buffers affecting electrophoretic mobility. 2½
 (d) Describe in brief the technique of High Voltage Electrophoresis. 2½

2. With the help of suitable diagram discuss the technique of disc gel electrophoresis. Add a note on its applications. 10

OR

- (a) What is a role of ampholytes in isoelectric focussing ? 2½
 (b) Write short note on ELISA. 2½
 (c) Describe the Ouchterlony technique of immunodiffusion. 2½
 (d) Give the principle and mechanism of radioimmuno assay. 2½

3. Describe in detail, how G.M. counter can be used to detect radiations by gas ionization method. 10

OR

- (a) Discuss the role of ³²p and ¹⁴c isotopes in biology. 2½
 (b) Write a note on Cerenkov radiation. 2½
 (c) Discuss quenching events occurring in scintillation counter. 2½
 (d) What do you mean by continuous discharge region ? Why does this discharge occur ? 2½

4. Compare differential and density gradient centrifugation with respect to principle and applications. 10

OR

- (a) Write a note on desktop centrifuge. 2½
 (b) How will you determine the molecular weight by sedimentation equilibrium method ? 2½
 (c) Write a note on Motors. 2½
 (d) Write a note on isopycnic centrifugation. 2½

5. Solve any **ten** :

- (i) Name any two dyes used for the detection of proteins in paper electrophoresis. 1
 (ii) Name the types of gels used in gel electrophoresis. 1
 (iii) Define molecular exclusion limit of gel. 1
 (iv) Write the full form of SDS-PAGE. 1
 (v) Write the full form of 'ELISA'. 1
 (vi) What is the difference between immunodiffusion and immunoelectrophoresis ? 1
 (vii) What is relationship between Curie and Bequerel ? 1
 (viii) What is meant by isotope dilution ? 1
 (ix) What is autoradiography ? 1
 (x) Write the Svedberg equation. 1
 (xi) Give the relationship between RCF and r.p.m. 1
 (xii) Define sedimentation co-efficient. 1