KNT/KW/16/5153

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

BIO-CHEMISTRY

(Biophysical & Biochemical Techniques)

Paper–II

Time : Three Hours] [Maximum Marks : 50

N.B. :— (1) **All** questions are compulsory and carry equal marks.

(2) Draw well labelled diagrams wherever necessary.

1. Describe in detail separation, deletion and identification of proteins by paper electrophoresis. 10

OR

(a) Write a note on technique of high voltage electrophoresis. 5

(b) Describe how size and charge on a molecule affect electrophoretic mobility. 5

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

OR

Write notes on :

(a) ELISA 5

(b) Radial Immunodiffusion. 5

3. Describe in detail principle and working of G-M counter. Add a note on its advantages and disadvantages. 10

OR

(a) Describe the clinical applications of radioisotopes. 2½

(b) Write a note on autoradiography. 2½

(c) Discuss the use of isotopes in establishing precursor-product relationship. 2½

(d) Discuss different patterns of radioactive decay. 2½

4. Give a detailed account of density gradient centrifugation. 10

OR

(a) Describe various types of centrifuges. 5

(b) Write a note on differential centrifugation. 5

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

(i) Agarose gel is usually used for separation of which type of macromolecules ? 1

(ii) What is the use of β-mercaptoethanol in gel electrophoresis ? 1

(iii) Name the components of polyacrylamide gel. 1

(iv) Why is disc-gel electrophoresis so called ? 1

(v) What is the difference between separating and stacking gel ? 1

(vi) What is the full form of RIA ? 1

(vii) Define half life of a radioisotope. 1

(viii) On what principle scintillation counter works ? 1

(ix) What is the relationship between Curie and Becquerel ? 1

(x) What is the full form of RCF ? 1

(xi) Give one point of difference between preparative and analytical centrifugation. 1

(xii) Name any one centrifugation method used to determine molecular weight. 1