

NRT/KS/19/2120

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

BIO-CHEMISTRY

(Biophysical and Biochemical Techniques)

Optional Paper—II

Time : Three Hours]

[Maximum Marks : 50

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

(2) Draw diagram wherever necessary.

1. Describe the principle and procedure of Gel Electrophoresis. 10

OR

(a) Describe any two factors affecting electrophoretic mobility. 5

(b) Describe protein detection techniques used in paper electrophoresis. 5

2. Explain the principle and procedure of SDS-PAGE. 10

OR

Write short notes on :

(a) Immunodiffusion 5

(b) Radioimmunoassay. 5

3. Describe in detail Liquid scintillation counters. 10

OR

Write short notes on :

(a) Isotope dilution technique 5

(b) Patterns of radioactive decay. 5

4. Describe isolations of cell components using centrifugation. 10

OR

Write notes on :

(a) Rate zonal centrifugation 5

(b) Wall effects. 5

5. Answer any ten :

(i) Why Agarose is preferred over Agar for Gel electrophoresis. 1

(ii) Which electrophoretic technique will you use to separate amino acids ? 1

(iii) Will a protein and DNA of same molecular weight give separate bands during electrophoresis ? 1

(iv) What is the charge on Glycine in the separating Gel during SDS-PAGE ? 1

(v) Ampholytes are used in which electrophoretic technique ? 1

(vi) Give one application of ELISA. 1

(vii) Name the radioactive Isotope of Hydrogen 1

(viii) What are soft beta particles ? 1

(ix) Which isotope of carbon is used for carbon dating ? 1

(x) What is Svedberg constant ? 1

(xi) What is varied during differential centrifugation ? 1

(xii) _____ is used for creating density gradient in centrifugation. 1