KNT/KW/16/5165

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

BIOTECHNOLOGY

(Biostatistics & Biophysical Techniques–II)

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 the process of High Voltage Electrophoresis (HVE) in detail. 10

OR

Discuss in detail the factors affecting electrophoretic mobility. 10

2. Explain in detail the applications of SDS-PAGE. 10

OR

Explain the principle and method of Isoelectric focussing. 10

3. Describe the measurement of stable isotopes by :
   (a) Falling drop method
   (b) Mass spectrometry. 10

OR

Discuss basic principle, instrumentation and technique of scintillation counting. 10

4. Explain the isolation of cell components by differential centrifugation method. 10

OR

Compare Rate zonal and Isopycnic density gradient centrifugation methods. 10

5. Solve any **ten** :
   (i) What is CTAB ? 1
   (ii) Why Agarose is preferred over Agar for gel electrophoresis ? 1
   (iii) Name a dye commonly used to stain proteins in gel. 1
   (iv) What is the role of density gradient in isoelectric focussing ? 1
   (v) What is the change on proteins during SDS-PAGE ? 1
   (vi) What is the purpose of pulsed-field gel electrophoresis ? 1
   (vii) How can one differentiate between stable and radioactive isotopes ? 1
   (viii) Which of the three isotopes of hydrogen is radioactive ? 1
   (ix) Define curie. 1
   (x) What is median ? 1
   (xi) What is RCF ? 1
   (xii) What is sedimentation coefficient ? 1