

B.Sc. (CBCS Pattern) Semester-IV
011A - Biotechnology Paper-I - Biophysical Techniques

P. Pages : 2

Time : Three Hours



GUG/W/24/11994

Max. Marks : 50

Notes : 1. All questions are compulsory and carry equal marks.

1. Give the concept of Lambert's and Beer's law with its significance. **10**

OR

- a) Add a note on concept of chromophore. **2½**
- b) Differentiate between spectrophotometer and colorimeter. **2½**
- c) Discuss the concept of electromagnetic radiation. **2½**
- d) Give applications of UV-visible spectrophotometry. **2½**

2. Describe in detail principle and procedure of affinity chromatography. **10**

OR

- a) Discuss the partition coefficient and its role in chromatography. **2½**
- b) Give the application of TLC. **2½**
- c) Write types of resins used in Ion-exchange chromatography. **2½**
- d) Add a note on types of gels in gel filtration chromatography. **2½**

3. Describe in detail preparative centrifugation technique. **10**

OR

- a) Write the applications of SDS-PAGE electrophoresis. **2½**
- b) Discuss the factors affecting electrophoretic mobility. **2½**
- c) Add a note on sedimentation coefficient. **2½**
- d) Explain the concept of RCF. **2½**

4. Give the application of isotopes in distribution and metabolic studies. **10**

OR

- a) Differentiate between radioactive isotopes and stable isotopes. **2½**
- b) Discuss falling drop method for deuterium. **2½**
- c) Add a note on autoradiography. **2½**
- d) Write the working mechanism of Geiga-Muller counter. **2½**

- 5. Solve any ten. (1 marks each)**
- a) What is wavelength range of visible region? **1**
 - b) Write at least one example of chromophore. **1**
 - c) Give the source of light used in UV-VIS spectrophotometer? **1**
 - d) Which type of paper is used in paper chromatography. **1**
 - e) Write the buffers used in ion-exchange chromatography? **1**
 - f) Write the name of locating reagent used in paper chromatography technique for amino acid detection. **1**
 - g) DNA will migrate towards which electrode in gel electrophoresis. **1**
 - h) Give any two gels used in electrophoresis. **1**
 - i) Write the full form of SDS-PAGE. **1**
 - j) Define radioactive decay? **1**
 - k) Give two applications of liquid scintillation counter? **1**
 - l) Write two uses of radioactive isotopes in biotechnology. **1**
