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S. No. of Question Paper : 5293

Unique Paper Code : 2494001203

Name of the Paper : Techniques in Biochemistry

Name of the Course : B.Sc. (Hons.) Biochemistry (NEP)

Semester : II

Duration : 2 Hours

Maximum Marks : 60

(Write your Roll No. on the top immediately on receipt of this question paper.)

There are six questions.

Attempt four questions in all.

All questions carry equal marks.

Question No. 1 is compulsory.

1. (a) Explain the following terms :

- (i) Electromagnetic spectrum
- (ii) Svedberg coefficient
- (iii) Electrophoretic mobility
- (iv) Salting out
- (v) Native gel
- (vi) Chromatography.

P.T.O.

(b) Briefly describe the contribution of the following scientists :

(i) Antonin Prandtl

(ii) Arne Tiselius

(iii) Mikhail Tsvet. 12,3

2. (a) Define the working of double beam UV-visible spectrophotometer with suitable diagrams.

(b) Discuss the working principle and application of paper chromatography. 8,7

3. (a) Briefly describe the principle of centrifugation and different factors affecting it and discuss the various types of centrifuges.

(b) What is the role of Ethidium bromide, TEMED, stacking gel and bromophenol blue in the process of electrophoresis ?

(c) What is hypsochromic, hyperchromic and hypochromic shifts ? 8,4,3

4. Write short notes on the following :

(a) Cell lysis methods

(b) Factors affecting the migration of DNA in agarose gel electrophoresis

(c) Types of rotors. 5×3

5. (a) Give a brief overview of Lambert-Beer law and its limitations.

(b) Explain the importance of molecular sieve chromatography.

- (c) A mixture of three amino acids was analyzed with paper chromatography. The paper is extensively hydrated. The solvent system is *n*-propanol : water (70:30 ratio). Predict the order of mobility of these three amino acids on the chromatogram and draw it. i.e. low to high R_f of the three amino acids, given that they are Aspartic acid, Alanine and Phenylalanine (mentioned here in the order of decreasing polarity).

6,5,4

6. Differentiate between the following :

- (i) Ion exchange and affinity chromatography
- (ii) Density gradient and differential centrifugation
- (iii) PAGE and AGE.

5×3