4. (a) Discuss the working of a spectrofluorimeter with the help of a diagram.

(b) Explain the principle of gel filtration chromatography and give two applications.

(c) Explain the technique of density gradient centrifugation. (5,5,5)

5. (a) Differentiate between the following:

(i) Cation and anion exchanger

(ii) SDS-PAGE and native gel electrophoresis

(iii) Extrinsic and intrinsic fluor

(b) A solution of UTP of concentration 29.3 mg/litre has an absorbance of 0.25 at 260nm. If the light path is 1.0cm and the molecular weight of UTP is 586, calculate the molar absorbance coefficient of UTP. (12, 3)

6. Write short notes on the following:

(a) Different types of rotors

(b) Iscelectric focussing

(c) Lamberts-Beer Law (5, 5, 5)

[This question paper contains 4 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 1053 **D**

Unique Paper Code : 2492011103

Name of the Paper : Biochemical Techniques

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

Semester : I

Duration : 2 Hours Maximum Marks : 60

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. There are **six** questions
3. Attempt **any four** questions.
4. **All questions** carry equal marks.
5. **Question No.** 1 is compulsory.

P.T.O.

1. (a) Answer / Explain the following:

(i) Agarose gel is preferred over polyacrylamide for electrophoresis of DNA

(ii) Two methods used to check the purity of DNA sample

(iii) Sedimentation rate depends on the shape and density of a molecule

(iv) TLC is advantageous over paper chromatography

(b) Give an example of

(i) A substance used for density gradient chromatography

(ii) A stationary phase used in TLC

(iii) An extrinsic fluor (12,3)

2. (a) Write the role of the following:

(i) Vacuum pump in ultrcentrifuge

(ii) Monochromator in a spectrophotometer

(iii) TEMED in electrophoresis

(b) Define the following:

(i) Sedimentation coefficient

(ii) Bathochromic shift

(iii) Partition coefficient

(iv) Exclusion limit

(v) Electrophoretic mobility

(vi) Stokes shift (9,6)

3. (a) Discuss the principle of affinity chromatography. What is the ligand used for purification of the following:

(i) Immunoglobin G

(ii) Glycoprotein

(iii) mRNA

(b) Explain the process of fluorescence and give two applications.

(b) What are the features of an ideal chromatographic gel matrix? (6,5,4)

P.T.O.