

**55004**

Seat No. \_\_\_\_\_

**M. Sc. (Part-I) Examination**

April/May - 2003

**Biochemistry : Paper - I**

Time : 3 Hours]

[Total Marks : 100

**Instruction :** All questions carry **equal** marks.

- 1** (a) Explain potentiometry.  
(b) What are the electrodes used in pHmetry? Why pH meter should be calibrated?  
(c) Discuss polarography.

**OR**

- 1** (a) What is conductance? How cell constant is determined?  
(b) Describe the conductometric titration of weak acid against strong base.  
(c) Explain enzyme electrode.
- 2** (a) What are the factors which effect the solvent extraction equilibria?  
(b) An aqueous solution (20 ml) of cobalt was extracted with 10 ml of chloroform solution of oxine. Calculate the quantity of cobalt remained in aqueous media. The  $k_D$  is 2.5.  
(c) Explain electron capture (EC) detector.

**OR**

- 2** (a) Discuss the column chromatography.  
(b) Explain plate theory.  
(c) Write a note on Van Deemter equation.
- 3** (a) Explain UV-visible spectra.  
(b) What is the difference between specific photometer and calorimeter.  
(c) Explain Beer's Lambert law. How is it differs from calibration curve?

**OR**

- 3 (a) Explain fluorescence. How is fluorescence intensity related to concentration ?  
 (b) Discuss flame less atomic absorption spectrophotometry (AAS).  
 (c) Write a note on plasma emission.
- 4 (a) Explain activation analysis.  
 (b) How is it useful ?  
 (c) An unknown sample of cadmium was irradiated W/E 2.0g standard cadmium (1600 counts per second) for 60 hrs. Then the unknown cadmium gave 1000 counts per second. Calculate the amount of unknown cadmium.

**OR**

- 4 (a) Describe Radio immunoassay technique.  
 (b) What are the advantages of isotopic dilution technique ?  
 (c) A unknown blood sample having iron was mixed with 1.5g standard active iron which gave 900 counts per second. The purest iron was isolated and gave 600 counts per second. Calculate the amount of iron in the unknown blood sample.
- 5 (a) Explain standard deviation.  
 (b) Discuss precision and accuracy.  
 (c) In a set of analysis the following values of glycine obtained : 11.56, 11.58, 11.57, 11.59, 11.55.  
 Calculate the mean, average and standard deviation.

**OR**

- 5 (a) What are indeterminate error ?  
 (b) Discuss least square method.  
 (c) From the following data obtained a least square equation ( $Y = mX + C$ )

Y	2	4	6	8	10
X	1	2	3	4	5