

55015

Seat No. _____

M. Sc. (Part - I) Examination

April / May – 2003

Biotechnology : Paper-I

(Biostatistics, Bioinformation & Modern Analytical Techniques)

Time : **3** Hours]

[Total Marks : **75**

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

- 1** (a) Explain the determinate and indeterminate errors.
(b) Define standard deviation.
(c) The amount of iron in blood samples are determined by four different methods. Which give 16.37, 16.29, 16.39 and 16.35 ppm. Calculate the standard deviation.

OR

- 1** (a) Explain precision and accuracy ?
(b) What is regression analysis ?
(c) Find two value of 'a' and 'b' in the equation $Y = a + bx$ for the straight line from the following data :

Y	1	3	4	6
X	2	3	4	5

- 2** (a) Explain ion selective electrodes.
(b) Discuss Biosensors.
(c) Explain polarography.

OR

- 2** (a) What is conductance ? How is cell constant determined ?
(b) Discuss the conductometric titration of strong acid against weak base.
(c) Write a note on Electrophoresis.

- 3** (a) Discuss solvent extraction technique.
(b) Explain HPLC
(c) What are the detectors used in HPLC ?

OR

- 3** (a) Discuss plate theory.
(b) Explain the principle of gas chromatography.
(c) Discuss super critical fluid chromatography.

- 4 (a) What are hollow cathode lamps.
(b) Discuss flame less atomic absorption spectrophotometry.
(c) Explain NMR.

OR

- 4 (a) Explain fluorescence. Why is the detector right angle to the sample ?
(b) Discuss Beer's Lambert law and its limit.
(c) Discuss the importance of infrared.
- 5 (a) Explain Activation analysis ?
(b) Explain radio immunoassay ?
(c) What is immunofluorescence ?

OR

- 5 (a) Discuss isotopic dilution method.
(b) What is its drawback ?
(c) A blood sample having traces of cadmium is mixed with a standard (0.4g) labelled cadmium (3000 counts per second). A cadmium was precipitated as cadmium sulphide. It was isolated purified and trace of it is counted which gave 2000 counts per second. Calculate the amount of cadmium in blood sample.
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