

H-56077

Seat No. _____

M. Sc. (Part – II) Examination

April / May – 2003

Life Science : Paper-V

(Bio-Statistics & Modern Instrumental Techniques)

Time : **3** Hours]

[Total Marks : **100**

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

- 1**
- (a) Give the classification of errors.
 - (b) Explain mean and average.
 - (c) The percentages of a constituent A were found to be 48.32, 48.36, 48.33, and 53.20. Calculate the mean and average.

OR

- 1**
- (a) Explain coefficient variance.
 - (b) Discuss standard deviations.
 - (c) The fluorimetric analysis of fluoride gives 0.45, 0.44, 0.46 and 0.45 ppm. Calculate the standard deviations.
- 2**
- (a) Explain the principle of solvent extraction.
 - (b) Discuss the theory of column separation.
 - (c) Discuss Thermal conductivity detector.

OR

- 2**
- (a) Explain HPLC.
 - (b) Discuss Electrophoresis.
 - (c) Discuss kinetic theory of chromatography.
- 3**
- (a) How is fluorescence intensity related to concentration.
 - (b) Why are two monochromators required in fluorophotometry.
 - (c) Write a note on NMR.

OR

- 3** (a) Give the principle of IR.
(b) Why is KBr used in sample preparation.
(c) Discuss how is mercury estimated by AAS.
- 4** (a) Discuss Activation Analysis.
(b) A 0.4 g of iron having a count 800 per second was used as irradiations science and unknown sample was irradiated for 48 hrs. After that it gave 600 counts per second. Calculate the amount of iron in sample.
(c) Write the advantages of trace analysis.

OR

- 4** (a) Discuss isotopic dilution techniques.
(b) What are its advantages and limitations.
(c) Explain radio immunoassay.
- 5** Write note on any **three** :
- (a) Fluoride ion selective electrode
 - (b) Glass electrode is a ion selective electrode
 - (c) Enzyme electrode
 - (d) Flow cytophotometry
 - (e) Electron Microscopy
 - (f) Fluorescence scanning.
