M. Sc. (Part - II) Examination

April / May – 2003

Environmental Science : Paper - VIII

(Environmental Modern Analytical
Techniques & Instrumentations)

Time : **3** Hours]   [Total Marks : **75**

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

1 (a) Give the classification of errors.

(b) Calculate the mean of the following sets of the values :

10.5, 10.4, 10.6, 10.7, 11.8 and 10.8.

(c) Discuss the standard method of the collection of air samples.

OR

1 (a) How are water samples collected ?

(b) Explain least square method.

(c) Calculate the regression equation, $y = a + bx$ for the following data :

Y :	1	2	3	4	5
X :	0.2	0.4	0.6	0.8	1.0

2 (a) Explain solvent expaction technique.

(b) A 0.001 *g* of the mercury was remained when it was extracted with 20 ml chloroform solution of methylene blue from 25 ml of aqueous solution. Calculate the distribution co-efficient.

(c) Write a note on gas chromatography.

OR

2 (a) Discuss plate theory ?

(b) What are the advantages of HPLC.

(c) Discuss TCD (Thermal Conductivity detector).

3 (a) Explain Beer's Law and calibration curve.

(b) Give the principle of IR and its importance.

(c) Discuss the Fluorimetry.

OR

3 (a) Explain the advantages of graphite furnace atomic absorption spectrometry.

(b) How is arsenic estimated by Hydride Generator technique.

(c) Explain plasma Emission.

4 (a) Explain merany dropping electrode.

(b) What are ion selective electrodes ?

(c) Show that the glass electrode is a hydrogen ion selectrode.

OR

4 (a) Discuss isotopic dilution technique.

(b) What one its limitation.

(c) A unknown solution of mercury was mixed with 0.6 *g* of labelled mercury (900 counts per second). The purest form of the merany was isolated which gave 450 counts per second. Calculate the amount of mercury in the sample.

5 Write note on the following : (any **two**)

    (a) Flame photometry

    (b) Nephelometry

    (c) SO_2 Monitoring

    (d) NOX Monitoring.

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