

Time: 2.30 Hrs

[Total Marks: 60]

- N.B.:** 1) All questions are compulsory.  
 2) All questions carry equal marks.  
 3) Draw neat & labelled diagrams wherever necessary.

Q1. Attempt **any two** questions from the following 12

- A) Explain sampling procedure of surface and groundwater.
- B) Describe the sampling methods for the collection of gaseous and particulate samples.
- C) Explain the concepts of environmental monitoring and give significance.

Q2. Attempt **any two** questions from the following 12

- A) Explain the importance of spectrophotometric methods for measuring common air pollutants.
- B) Describe the working of HPTLC and write key features.
- C) Describe the theory, principle, and environmental applications of Flame photometry.

Q3. Attempt **any two** questions from the following 12

- A) Write an introduction, principle, and applications of X-ray Fluorescence.
- B) Explain the Chemiluminescence method and fluorescent analyser for SO<sub>2</sub>.
- C) Give the principle and applications of X-ray Diffraction.

Q4. Attempt **any two** questions from the following 12

- A) Define primary and secondary data and explain the methods of collection of primary and secondary data.
- B) Give an introduction to probability and explain the types of events.
- C) Calculate the standard deviation for the following dataset.

Class Interval	Frequency
0.0-0.5	4
5.0-10.0	6
10.0-15.0	8
15.0-20.0	5
20.0-25.0	7
25.0-30.0	3

Q5. Attempt **any four** questions from the following 12

- A) A sampling of wastewater and sample preservation
- B) Thermogravimetry
- C) Pearson's Coefficient
- D) Scanning electron microscopy (SEM)
- E) Flow injection analyzer

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