



- Notes : 1. All questions are compulsory and carry equal marks.  
2. Illustrate the answers wherever necessary with the help of neat sketches.

1. Discuss the criteria for the choice of mobile and stationary phase. Describe in brief detectors used in gas chromatography. **16**

**OR**

- a) Explain an account on classification of chromatographic separations. **8**  
b) How the choice of solvent and stationary phases is carried out? **8**

2. State the principle of atomic absorption spectroscopy. With a neat sketch explain its construction and working. **16**

**OR**

- a) Describe the construction and working of UV-Visible spectrophotometer. **8**  
b) Highlight the applications of various spectrophotometry based instruments in environmental monitoring. **8**

3. Discuss the basic principle of ion selective electrode. Give its classification. Explain the method of measurement of fluoride by these electrodes. **16**

**OR**

- a) State types of electrochemical techniques. Discuss the application of polarography in environmental analysis. **8**  
b) Explain the speciation of heavy metals in natural water system. **8**

4. What is inductively coupled plasma? Describe its construction and working. State its applications in environmental analysis. **16**

**OR**

- a) State types of errors. How minimization of errors can be carried out? **8**  
b) With suitable examples discuss mean, mode, median and range. **8**

5. a) State the advantages of gas chromatography coupled with mass spectrometry. **4**  
b) Explain the working of turbidity meter. **4**  
c) What is redox potential? **4**  
d) Write an informative note on x-ray diffraction. **4**

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