

# **Electronics And Instrumentation**

## **8<sup>th</sup> Semester**

**Subject: Analytical Instrumentation**

**Subject code: BT 808**

### **Practice Set**

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#### **PART A**

1. State Beer-Lambert's law.
2. What is meant by attenuated total reflectance?
3. Why packing of column is done in column chromatography?
4. How is thin layer chromatography better than paper chromatography?
5. What are ion-exchangers?
6. List a few types of gas analyzers.
7. What is meant by redox potential?
8. Distinguish between glass electrode and reference electrode.
9. What is grating in spectroscopy?
10. Define mass spectroscopy.

#### **PART B**

11. (a) Briefly, discuss the principle, working technique and application of atomic absorption with suitable diagram.

Or

(b) With a neat instrumentation setup, describe the principle of (ill) InfraRed, spectrophotometer and the various components involved in it.

12. (a) Explain the sample preparation, sample injection methods and separation process in gas chromatography.

Or

(b) Explain any two types of detectors used in liquid chromatography.

13. (a) With a suitable diagram, describe the working principle of oxygen analyzer.

Or

(b) With a neat sketch, explain the working of thermal conductivity meter and using any method of calibration draw the calibration curve. Also establish a suitable method for the temperature compensation of the conductivity cell.

14. (a) Explain the construction and working principle of hydrogen electrode to measure pH. Use neat diagrams to explain.

Or

(b) With neat sketch, explain, the Ion Selective Electrode (ISE). Also explain the general calibration procedure for any pH meter.

15. (a) Describe the working principle of Gamma camera and explain, how signal processing is done. Also discuss about its spatial resolution.

Or

(b) Describe the working of double beam mass spectrometer and give its application.