

# **TDC Part III**

## **Practical (Lab Work)**



**Department of Chemistry**

**L.S COLLEGE MUZAFFARPUR**

**B. R. A. BIHAR UNIVERSITY**

**Dr. Priyanka**

**TOPIC:- Some sophisticated instruments**

## Some sophisticated instruments

Two major categories of methods involving sophisticated instruments are spectroscopic and chromatographic methods. Spectroscopic methods are based on interaction of electromagnetic spectra (ranging from U.V-light to X-ray and radio-wave) with material. Spectroscopic methods are mainly used to characterize the materials. The most important spectroscopic methods are:

- Atomic Absorption Spectroscopy, Flame Photometry, Atomic Fluorescence Spectroscopy
- Emission Spectroscopy
- Raman Spectroscopy
- Microwave Spectroscopy
- U.V. Absorption Spectrophotometer
- Infrared Spectrophotometry
- Fluorophotometry - Phosphorimetry
- Turbidometry – Nephelometry
- Refractometry - Interferometry
- Raman Spectroscopy
- X-ray: Absorption, Emission, Diffraction
- Nuclear Magnetic Resonance Spectroscopy – Electron

## Spin Resonance Spectroscopy

- Gamma-ray Spectroscopy – Mossbauer Spectroscopy

Whereas chromatographic methods mainly used to separate the different compounds or molecules based on their affinity or interaction with stationary and mobile phase. Chromatographic technique is a modern technique for the separation of individual component present in the mixture. The chromatographic technique is based on the rate at which the component of a mixture move through the porous medium (stationary phase) under the influence of some solvent or gas (mobile phase).

Based on the nature of stationary phase and mobile phase, chromatography can be different types such as;

1-Partition chromatography, eg; Paper chromatography

2-Adsorption chromatography, eg; Thin

layer chromatography (TLC) 3-Ion

exchange chromatography, eg; Column

chromatography