

**9211**

**M.Sc. IV<sup>th</sup> SEMESTER EXAMINATION, 2019**

**CHEMISTRY**

**Paper – I**

**Special Methods of Analysis**

Time: Three Hours

Maximum Marks: 80

**PART – A (खण्ड – अ)**

[Marks: 20]

*Answer all questions (50 words each).*

*All questions carry equal marks.*

सभी प्रश्न अनिवार्य हैं। प्रत्येक प्रश्न का उत्तर 50 शब्दों से अधिक न हो।

सभी प्रश्नों के अंक समान हैं।

**PART – B (खण्ड – ब)**

[Marks: 40]

*Answer five questions (250 words each),*

*selecting one from each unit. All questions carry equal marks.*

प्रत्येक इकाई से एक-एक प्रश्न चुनते हुए, कुल पाँच प्रश्न कीजिए।

प्रत्येक प्रश्न का उत्तर 250 शब्दों से अधिक न हो।

सभी प्रश्नों के अंक समान हैं।

**PART – C (खण्ड – स)**

[Marks: 20]

*Answer any two questions (300 words each).*

*All questions carry equal marks.*

कोई दो प्रश्न कीजिए। प्रत्येक प्रश्न का उत्तर 300 शब्दों से अधिक न हो।

सभी प्रश्नों के अंक समान हैं।

## **PART – A**

- Q.1 (i) Write the two applications of DTA.  
(ii) Explain the TG Curve.  
(iii) Write a short note on Voltammetry.  
(iv) Write the three uses of Polarography.  
(v) Define the various sample injection system in HPLC.  
(vi) Give the theory of Gel Permeation Chromatography.  
(vii) Explain ion exchange Resin.  
(viii) Write the two factors affecting ionic migration.  
(ix) Give the main principle of Nephelometry.  
(x) Write a short note on tracer technique.

## **PART – B**

### **UNIT – I**

- Q.2 Write Instrumentation for DSC technique.  
Q.3 Give the difference between TGA, DTA and DSC.

### **UNIT – II**

- Q.4 Explain the various types of currents.  
Q.5 Write Instrumentation and two uses of Polarography.

### **UNIT – III**

- Q.6 Write advantage and application of HPLC.  
Q.7 Give the methods of Gel preparation.

### **UNIT – IV**

- Q.8 Give the factors affecting solvent extraction.  
Q.9 Write the main properties of ion exchange resins.

### **UNIT – V**

- Q.10 Write short note on Geiger-Muller counter.  
Q.11 Write advantages and disadvantages of Radioactive techniques.

## **PART – C**

- Q.12 Write the principle, instrumentation and applications of thermo gravimetric analysis.  
Q.13 Give the principle, instrumentation and uses of Amperometry.  
Q.14 Write a brief account on Gas Liquid Chromatography.  
Q.15 Write the types of ion exchange resin and basic requirement for Resin.  
Q.16 Give the principle, instrumentation and applications of Raman Spectroscopy.