

## U.G. 5th Semester Examination - 2021

**CHEMISTRY****[HONOURS]****Discipline Specific Elective (DSE)****Course Code : CHEM-H-DSE-T-2A**

Full Marks : 40

Time : 2½ Hours

*The figures in the right-hand margin indicate marks.**Candidates are required to give their answers in their own words as far as practicable.*

1. Answer any **five** questions:  $2 \times 5 = 10$
- What do you mean by standard deviation of a population of observations?
  - What is t-test?
  - Define distribution coefficient.
  - How will you define exchange capacity of a cation exchange resin?
  - Classify electroanalytical method.
  - State Lambert-Beers law.
  - What is interferogram?
  - Define dark current.
2. Answer any **two** questions:  $5 \times 2 = 10$
- Explain basic principle of thermogravimetry. 5

- What is the difference between precision and error? What is random error?  $3+2=5$
  - Write a short note on role of computer in instrumental method of analysis. 5
  - Write a short note on ion chromatography. 5
3. Answer any **two** questions:  $10 \times 2 = 20$
- Explain the factors that control solvent extraction. What is synergic extraction? Explain with example. What do you mean by size exclusion chromatography?  $4+3+3=10$
  - Explain the instrumentation of HPLC using a simple schematic diagram. What are the differences between adsorption chromatography and partition chromatography? What is suppressor column?  $4+3+3=10$
  - What are the differences between single beam and double beam UV-VIS? What are the advantages of FT-IR? Explain the advantages of F-test in analytical measurement.  $3+3+4=10$
  - How will you determine total iron spectrophotometrically? Write a note on effect and importance of isotope substitution. Describe the principle of iodometric determination of  $\text{Cu}^{2+}$ .  $3+4+3=10$

*[Turn over]*