

2 ½ Hours

Total Marks: 75

1. Attempt all questions.
2. All questions carry equal marks.
3. Draw neat labeled diagrams wherever necessary.
4. Use of log tables and non-programmable calculator is allowed.
5. For Q 2, Q 3 and Q 4 attempt A and B OR C and D.

Q 1 Attempt Multiple Choice Questions (Any fifteen)

1. 8-Hydroxyquinoline is a _____ agent.
a) Reducing b) Oxidizing c) Chelating d) Both a and b
2. Which of the following is a physical separation method?
a) Solubilisation b) Filtration c) Hydrolysis d) Sublimation
3. Gross sample is the total sample obtained after mixing _____ in the Sampling unit.
a) Increments b) Instalments c) Substitutes d) Additives
4. Svedberg unit(s) is _____.
a) Centrifugal force b) Sedimentation coefficient
c) Gravity factor d) Revolutions
5. Association of water with metal ion is called _____.
a) Sublimation b) Hydrolysis c) Hydration d) Emulsification
6. Vacuum distillation is also known as _____ pressure distillation.
a) Reduced b) Solute c) High d) Enhanced
7. For sampling of liquids, _____ can be used.
a) Sample thief b) Sample dispenser
c) Sample thief d) Sample unit
8. What is a Geminai alkyl group?
a) two different alkyl groups on same carbon
b) two same alkyl groups on a carbon atom
c) $-\text{CH}_2$
d) $-\text{CH}=\text{CH}_2$
9. Which of these is a water soluble vitamin?
a) Vitamin A b) Vitamin B c) Vitamin E d) Vitamin D
10. Which of these is a steroid hormone?
a) Insulin b) TRH c) Cholesterol d) Testosterone
11. What is the stationary phase in gas -liquid chromatography?
a) Gas b) Liquid c) Solid d) None of the above
12. HPLC is run under _____.
a) high pressure b) low pressure c) No pressure d) vacuum
13. Which of the following is a secondary metabolite?
a) Carbohydrate b) Proteins c) Tannins d) Fats
14. What type of product is camphor?
a) Alkaloid b) Terpenoid c) Sterol d) Vitamin

Q. 2 A (i) Discuss various factors considered in sampling of gases.

04 3

(ii) Explain solvent extraction using ion pair formation and salivation.

04 2

Q. 2 B What is distillation? Explain with the help of a diagram how it can be used as a separation method.

07 6.

Q. 2 C (i) Compare and contrast between random and non-random sampling.

04

(ii) Discuss the basic principle of centrifugation.

04

Q. 2 D Explain partition coefficient and give three applications of solvent extraction.

07

Q 3A What are alkaloids? What are their sources?

08

Q. 3.B Differentiate between primary and secondary metabolites.

07

OR

Q. 3 C What are the methods employed to determine the structures of natural products like alkaloids?

08

Q. 3D Explain the basic steps of HPTLC.

07

- Q. 4 A** Discuss Nanomaterials and its forms. 08
- Q. 4 B** How Nanomaterials are characterized using UV-Vis and IR spectroscopy? 07
- OR**
- Q. 4 C** What is addition and condensation polymerisation? Explain with examples. 08
- Q. 4 D** Explain tacticity of polymers and its types. 07
- Q. 5** Write Short notes on **any three** of the following 15
- Approaches for synthesis of nanomaterials.
 - Homopolymer and copolymer
 - Importance of sampling.
 - Separation factor.
 - Applications of GC.