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 Do as directed (Any fifteen) **15**

1. _____ sampling requires minimum knowledge of bulk material.

   a) Systematic b) Random c) Gross

2. Which of the following affects the procedure of sampling?

   a) Size of sample b) Cost of sampling c) Location of sample

3. Partition coefficient and distribution ratio will be _____ .

   a) always equal
   b) always different
   c) equal if molecular condition is same
   d) equal when molecular condition is different

4. High boiling point liquids are separated using _____ .

   a) Fractional distillation b) Vacuum distillation c) Filtration

5. Liquid-liquid extraction is also known as _____ .

   a) Solvent extraction b) Filtration c) Vacuum distillation

6. Solubility _____ with increase in temperature

   a) increases b) decreases c) remains the same

7. Centrifugation is used for separation of solid from _____.

   a) Solid b) Liquid c) Gases

8. Which of the following is a primary metabolite?

   a) Amino acids b) Terpenoids c) Phenolics

9. Cholesterol is an example of _____ .

   a) Steroid b) Phenolic c) Alkaloid

10. Isoprenes are the basic unit of _____ .

    a) Terpenoids b) Alkaloids c) Phenolics

11. What does TLC stand for?

    a) Thick layer chromatography b) Thin layer chromatography
    c) Thick liquid chromatography

12. Which of the following is not a fully automated procedure?
    a) GC b) HPLC c) HPTLC
13. Essential oils are mostly derived from _____ .
    a) Plants b) Animals c) Soil
14. Which of the following is an example of a polymer?
    a) Ethene b) Polyethene c) Ethane
15. Which of the following is a heat stable polymer?
    a) Plastic b) Thermoplastic c) Thermosets
16. Which of the following is an addition polymer?
    a) Polyethene b) Polyester c) Polyamides
17. Which of these is a physical method of nanoparticle synthesis?
    a) Mechanical grinding b) Nucleation c) Sol-gel formation
18. Which of the following can be used to make nanotubes?
    a) Carbon b) Sulfur c) Phosphorus
19. Nanoparticles made by chemical synthesis produce what type of solutions?
    a) True solution b) Colloidal Solution c) Suspensions
20. Which of the following microscopes is used for characterization of nanoparticles?
    a) Light Microscope b) Dark Microscope c) Electron Microscope

Q. 2 A Explain the importance of sampling and sampling techniques. **08**

Q. 2 B Describe the process of distillation as a separation technique. **07**

OR

Q. 2 C Give the basic principles of sedimentation. **08**

Q. 2 D What is solvent extraction? Explain in brief. **07**

Q. 3 A Explain the classification of natural products based on biosynthesis. **08**

Q. 3 B What is HPTLC? Give its applications in analysis of natural products. **07**

OR

Q. 3 C Give the steps of structure determination of natural products. **08**

Q. 3 D What are phenolics? Give their significance and uses. **07**

Q. 4 A What are the different types of polymers? Explain with examples. **08**

Q. 4 B Compare and contrast between addition and condensation polymers giving suitable examples. **07**

OR

Q. 4 C Explain the different methods of synthesis of nanomaterials. **08**

Q. 4 D What are nanoparticles? Explain their properties. **07**

Q. 5 Write Short notes on **any three** of the following **15**

a. Non-Random Sampling.

b. Secondary metabolites.

c. Alkaloids.

d. Thermoplastics.

e. Nanomaterial.
