

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)**15**

1. Ratio of weight of the largest particle to weight of the sample is called _____ ratio.
 - a) Size to weight
 - b) Weight to weight
 - c) Volume to volume
 - d) Volume to weight
2. Reduced distillation method is also known as _____ distillation.
 - a) Fractional
 - b) Azeotropic
 - c) Vacuum
 - d) None of these
3. The total sample obtained by mixing all the increments is known as _____ sample.
 - a) Gross
 - b) Minor
 - c) Major
 - d) Additive
4. Full form of RCF is _____.
 - a) Relative centripetal force
 - b) Relative centrifugal force
 - c) Relative centrifugal factor
 - d) Revolutionary centrifugal force
5. Fraction of distribution ratio of two solutes is called _____ factor.
 - a) Sedimentation
 - b) Separation
 - c) Solubilization
 - d) Emulsification
6. The vapor pressure of a liquid is measure of its _____.
 - a) Sublimation
 - b) Hydrolysis
 - c) Hydration
 - d) Volatility
7. Sample thief is used for sampling of _____.
 - a) Liquids
 - b) Gases
 - c) solids
 - d) Both a and b
8. What is cocaine?
 - a) Glycosides
 - b) Esters
 - c) Amide
 - d) Salts of organic acid
9. Which of these is a fat soluble vitamin?
 - a) Vitamin A
 - b) Vitamin B₁
 - c) Vitamin C
 - d) Vitamin B₂
10. Ozonolysis of terpenoids leads to generation of _____.
 - a) Aldehydes
 - b) Alcohols
 - c) Acids
 - d) Alkanes
11. How are HPTLC plates visualized?
 - a) using a microscope
 - b) using a colorimeter
 - c) using a UV transilluminator
 - d) using dyes
12. Which of the following is a mobile phase in GC?
 - a) Hydrogen
 - b) oxygen
 - c) helium
 - d) carbon dioxide
13. Which of the following is a terpenoid?
 - a) cholesterol
 - b) retinol
 - c) adrenaline
 - d) Camphor
14. Which of the following is a primary metabolite?
 - a) Carbohydrates
 - b) Sterols
 - c) Tannins
 - d) Hormones

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15. Which of the following is/are colloids?
 a) Milk b) Foam c) Gel d) All of these
16. Micelle formation will require _____.
 a) organic liquid b) water c) surfactant d) all of these
17. The nanoscale structure synthesis from assembly of atoms or molecules is known as _____ approach.
 a) Bottom-up b) Top-Down c) Etching process d) all of these
18. _____ refers to the collective oscillation of conduction electrons upon excitation with incident light of a specific wavelength.
 a) Surface Plasmon Resonance b) Fermi level
 c) Electrical conductivity d) Glow discharge
19. The monomeric unit of Nylon 6 is _____.
 a) Caprolactum b) Hexamethylenediamine
 c) Adipic acid d) Butyric acid
20. Polycarbonate is used in _____.
 a) Helmets b) Lens c) Bullet Proof Glass d) All of these

Q. 2 A (i) Discuss the general procedure for sampling of gases. **04**

(ii) Explain the principle of liquid- liquid extraction. **04**

Q. 2 B Distillation is a separation method based on volatile nature of molecules. Justify. **07**

OR

Q. 2 C (i) Explain sampling of heterogeneous liquid. **04**

(ii) Discuss the theory of centrifugation. **04**

Q. 2 D Define distribution ratio. Explain the extraction of metals by chelation with the help of examples. **07**

Q. 3 A What are Phenolics? How are they classified? **08**

Q. 3 B What is the principle of gas chromatography? **07**

OR

Q. 3 C Explain the classification of natural products on the basis of bio-synthesis **08**

Q. 3 D What are essential oil? What are their sources? **07**

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Q. 4 A Describe any two physical methods for synthesis of Nanomaterials. **08**

Q. 4 B Explain characterization of Nanomaterials using Scanning Tunnelling Microscope. **07**

OR

Q. 4 C Write a note on preparation, properties and uses of the following polymers: **08**

- (i) Polyethene
- (ii) Polyvinyl chloride.

Q. 4 D Give classification of polymers. **07**

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

- a. Applications of nanotechnology.
- b. Polyhydroxyalkanoates (PHA).
- c. Non-random sampling.
- d. Filtration.
- e. Applications of HPTLC.