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1 (Sem-5) BVHPT 02

2025

HERBAL PROCESSING TECHNOLOGY

Paper : HPT0500204

Acc. No. (*Applied Separation Techniques*)

Full Marks : 45

Time : 2 hours

The figures in the margin indicate full marks for the questions.

1. Fill in the blanks : 1×5=5
- (i) The settling of suspended particles under gravity is called _____.
 - (ii) Centrifugation works on the principle of _____ force.
 - (iii) Removal of solvent by heating is known as _____.
 - (iv) Freeze drying is also called _____.
 - (v) Thin Layer Chromatography uses _____ as stationary phase.

2. Answer the following : **(any five)** $2 \times 5 = 10$

- (i) Define sedimentation and state its applications.
- (ii) Differentiate between batch and continuous centrifugation.
- (iii) What is evaporation? Mention its importance in herbal processing.
- (iv) Explain the principle of freeze drying.
- (v) What is cross-flow filtration?
- (vi) Define membrane separation and mention *two* examples.
- (vii) What is solvent extraction?
- (viii) Write *two* applications of chromatography.
- (ix) Paper chromatography separates compounds on the basis of _____.
- (x) Write the full form of RO.

3. Write short notes on : **(any four)** $5 \times 4 = 20$

- (i) Principles and applications of centrifugation
- (ii) Spray drying technique
- (iii) Types of filters used in industry

- (iv) Ultrafiltration and its advantages
- (v) Solvent extraction equilibria
- (vi) Two-phase aqueous extraction system
- (vii) Thin Layer Chromatography (TLC)
- (viii) Paper chromatography and its uses

4. Write the answer : **(any one)** $10 \times 1 = 10$

- (a) Explain in detail the various methods of drying used in separation processes. Discuss their advantages and limitations.
- (b) Describe the theory of filtration. Explain different types of batch and continuous filters with suitable diagrams.
- (c) Discuss liquid-liquid extraction in detail. Explain the principle of solubility and factors affecting extraction efficiency.
- (d) Explain the principles of chromatography. Describe Thin Layer Chromatography and Paper Chromatography with applications.

