

(3 Hours)

Total Marks: 80

- NB: (1) Question **No.1** is **compulsory**.
(2) Attempt **any 3** questions out of remaining **5** questions
(3) **Each** question is of **20 marks**.
(4) **Figures** to right indicate **full marks**.

1. (a) What is membrane separation process? Classify. (5)
(b) Discuss Concentration Polarization (5)
(c) Lyophilisation (5)
(d) Electrodialysis (5)
 2. (a) Describe mechanism of Ion exchange chromatography (10)
(b) Discuss various equipment's of adsorption (10)
 3. (a) Discuss in detail reverse osmosis (10)
(b) Describe in detail Dialysis (10)
 4. (a) Describe construction, working and applications of spray dryer (10)
(b) Briefly explain mechanism of rotary dryer (10)
 5. (a) Write in brief agitated tank crystalliser (10)
(b) Explain Oslo evaporative crystalliser (10)
 6. (a) Discuss separation and purification of penicillin from fermentation broth. (10)
(b) Explain the downstream processing of interferons. (10)
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