

B.Pharm. Semester-IV (C.B.S.) Examination
PHARMACEUTICS-IV (UNIT OPERATIONS)

Paper-1

Time : Three Hours]

[Maximum Marks : 80

N.B. :— (1) Question No. 1 is compulsory.

(2) Solve any **FOUR** questions from remaining.

(3) Draw neat labelled diagram wherever necessary.

1. Solve any **FIVE** of the following :
 - (a) Define the terms relative humidity, dew point, dry bulb and wet bulb temperature.
 - (b) What is azeotropic mixture ? How it can be separated ? State suitable example.
 - (c) Draw FMC curve showing its different zones. Define EMC and CMC. Give its significance.
 - (d) Describe the principle of vacuum crystallizer with neat labelled diagram.
 - (e) State three steps of crystallization. Write short note on nucleation and crystal growth.
 - (f) Explain the mechanisms of heat flow. What is black body and grey body ?
 - (g) Explain the principle, working and use of Swenson Walker crystallizer. 5×4=20
2. (a) Explain Miers theory of supersaturation; state its limitations. 8
 (b) Describe principle, construction, working and use of Krystal crystallizer. 7
3. (a) Give classification of evaporators. Describe forced circulation evaporator in detail. 8
 (b) Write a note on capacity and economy of multiple effect evaporators. 7
4. (a) State Fourier's Law. Give its significance. Derive equation for conduction of heat through number of resistances. 8
 (b) What are heat exchangers and interchangers ? Describe tubular heaters in detail. 7
5. (a) Define corrosion. Describe the method for prevention of corrosion. 8
 (b) What is humidification ? Draw well labelled diagram of humidifier and discuss its principle. 7
6. (a) Define drying. State classification of dryers with suitable examples. Discuss principle, construction and working of spray dryer with neat diagram. 8
 (b) Elaborate on molecular distillation in detail. 7
7. Write short notes on (any **three**) :
 - (1) Freeze dryer
 - (2) Fractional distillation
 - (3) Film evaporator
 - (4) Refrigerants and refrigeration cycle. 5×3=15