NRJ/KW/17/4273

B.Pharm. Semester IV (CBS) 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 it's 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