NRT/KS/19/3161

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) Attempt any **four** questions out of remaining.

(3) All questions carry marks as indicated.

(4) Draw neat labelled diagram wherever necessary.

1. Solve any **five** of the following :
   (a) Write the mechanisms of heat transfer.
   (b) Draw a well-labelled diagram of forced circulation evaporator and write its principle.
   (c) Explain the factors affecting evaporation.
   (d) Explain the Mier's theory in brief.
   (e) Classify refrigerants and give examples in each class.
   (f) Explain Raoult's and Henry's Law.
   (g) Define drying. Classify various dryers. 5×4=20
2. Explain the principle, feeding methods, economy and capacity of multiple effect evaporators. 15
3. (a) Explain different mechanisms involved in corrosion. 8
   (b) Explain the theory of humidification and dehumidification. 7
4. (a) Explain the theory of drying in detail. 8
   (b) Write about principle, design and drawbacks of spray dryer. 7
5. (a) What are azeotropes ? Explain azeotropic distillation method in detail. 8
   (b) Describe various designs of fractionating column in detail. 7
6. (a) Explain the mechanism of nucleation and crystal growth in detail. 8
   (b) Discuss the principle and working of vacuum crystallizer. 7
7. Write short notes on any **three** :
   (a) Single pass tubular heater.
   (b) Design of Krystal crystallizer.
   (c) Factors affecting corrosion.
   (d) Freeze dryer. 3×5=15