

TKN/KS/16/6987

B. Pharm. Semester-IV (C.B.S.) Examination
PHARMACEUTICS-IV (Unit Operations)
Paper-I

Time—Three Hours]

[Maximum Marks—80

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

- (2) Solve any **FOUR** questions from the remaining.
- (3) Draw neat labelled diagram wherever necessary.
- (4) Use of electronic calculator is permitted.

1. Solve any **FIVE** :

- (a) Define distillation. Write its applications.
- (b) Define crystallization. Give different crystal forms or systems.
- (c) Explain principle and working of spray dryer with diagram.

- (d) Explain the principle of freeze drying. What are its pharmaceutical applications. 7
- (e) What do you mean by air conditioning ? Write its pharmaceutical applications. 8
- (f) Explain radiation and rate of radiation. What do you mean by black body and grey body ? 7
- (g) Discuss Raoult's law and Dalton's law along with deviations. $4 \times 5 = 20$
2. (a) Explain the factors affecting evaporation in detail. 8
- (b) Discuss principle, construction and working of forced circulation evaporator. 7
3. (a) Discuss the Mier's supersaturation theory of crystallization. What are its limitations. 8
- (b) Describe the principle, construction and working of crystal crystallizer. Write its advantages. 7
4. (a) What do you mean by equilibrium moisture content ? How it is measured ? Give its applications. 8
- (b) Describe principle, construction and working of fluidised bed dryer. Give its advantages. 7
5. (a) Give the mechanisms of heat flow. Explain the Fourier's law along with its applications. 8
- (b) What are heat exchangers and interchangers ? Explain tubular heater in detail. 7
6. What is fractional distillation ? Write about fractionating columns. Discuss azeotropic and fractional distillation with suitable diagrams. 15
7. (a) What is corrosion ? Explain factors influencing corrosion. State any four methods to prevent it. 8
- (b) Explain refrigeration process. Give its applications. Write refrigeration cycle with diagram. 7