

NTK/KW/15 – 6987

**Fourth Semester Examination for the Degree
of Bachelor of Pharmacy**

PHARMACEUTICS – IV

(Unit Operations)

Time : Three Hours]

[Max. Marks : 80

- N. B. : (1) Question No. 1 is Compulsory.
(2) Solve any four questions from the remaining.
(3) Draw neat labeled diagram wherever necessary.
(4) Use of electronic calculator is permitted.

1. Solve any **five** :—

- (a) What is lyophilization ? Explain principle and pharmaceutical applications.
- (b) Define distillation. Explain how distilled water and water for injection are prepared by distillation.
- (c) Explain the term crystal lattice, crystal habit and crystal forms.
- (d) Define evaporation. Explain any four factors affecting evaporation.
- (e) Define the terms relative humidity, dew point, dry bulb and wet bulb temperature.
- (f) Explain the principle and working of spray dryer.
- (g) Explain the mechanism of heat flow. What is black body and grey body ? 5x4=20

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Contd.

2. (a) What is functional distillation ? Explain fractionating columns and general method for fractional distillation. 8
- (b) Discuss principle, construction and working of fluidized bed dryer with suitable diagram. 7
3. (a) Classify evaporators. Describe principle, construction and working of forced circulation evaporator. 8
- (b) Explain principle, construction and working of Swenson Walker crystallizer. 7
4. (a) What are heat exchangers and inter-changers. Discuss tubular heater in detail. 8
- (b) Discuss the Fourier's law for conduction of heat through a metal wall. 7
5. (a) Define corrosion. Explain factors affecting corrosion. State any four methods for its prevention. 8
- (b) Give the classification of dryer with suitable examples. Add a note on critical and equilibrium moisture content (CMC and EMC). 7
6. (a) Explain Roul't's law and Dalton's law and molecular distillation process. 8

- (b) Describe principle, construction and working of climbing film evaporator. 7

- 7. (a) Explain the terms–humidification and dehumidification. Give its principle and applications. 8
- (b) Explain principle construction and working of crystal crystallizer. 7