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, cryrtal habit and cryrtal 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

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 Roult'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