

B.Pharm. Fourth Semester (C.B.S.) Examination

PHARMACEUTICS–IV (Unit Operations)

Paper–1 (4 T 1)

Time : Three Hours]

[Full Marks : 80

N.B. :— (1) Questions No. 1. is compulsory.

(2) Solve any **FOUR** questions from the remaining.

(3) Draw neat labelled diagram wherever necessary.

1. (a) Define evaporation and explain factors affecting it.
- (b) Describe the drying rate curve. Explain its applications.
- (c) What do you mean by primary and secondary drying in freeze drying process ?
- (d) Explain polymorphism, crystal hydrate and crystal solvate.
- (e) Define the term crystal habit. Give examples. Draw well labelled diagram of crystal crystallizer.
- (f) Discuss any four factors influencing corrosion.
- (g) Define the terms EML, loss on drying, moisture content and drying rate. 5×4=20
2. (a) What are heat interchangers ? Explain principle, construction and working of liquid to liquid interchanger. 8
- (b) What is corrosion. Discuss about prevention and control of corrosion. 7
3. (a) Explain principle, construction and working of fluidized bed dryer. 8
- (b) Discuss principle, construction and working of forced circulation evaporator. 7
4. (a) Explain simple and fractional distillation process. Add a note on fractionating column. 8
- (b) Explain Raoult's law and Dalton's law. Discuss preparation of water for injection by distillation method. 7
5. (a) What are various mechanisms of heat flow. Explain Fourier's law for conduction of heat through a metal wall. 8
- (b) Explain principle, construction and working of vacuum crystallizer. 7
6. (a) What is humidification and dehumidification ? Explain various approaches and applications for dehumidification. 8
- (b) Define refrigeration. Explain principle along with refrigeration cycle. 7
7. (a) What are various applications of distillation. Explain azeotropic and extractive distillation. 8
- (b) Explain principle, construction and working of shell and tube heater. 7