



(Following Paper ID and Roll No. to be filled in your Answer Book)

**PAPER ID : 150412**

Roll No.

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## B. Pharm.

(SEM. IV) THEORY EXAMINATION, 2014-15  
**PHARMACEUTICS-IV (UNIT OPERATIONS-II)**

Time : 3 Hours]

[Total Marks : 80

1 Answer **any four** of the following: **4×4=16**

- (a) Give importance of unit operation in pharmacy.
- (b) Write notes on following:
  - (i) Dimensionless equation
  - (ii) Dimensionless Groups
- (c) Explain the term 'Mass balance' and 'Energy balance'. What are its applications?
- (d) Distinguish between Steady and Unsteady state.
- (e) Explain bar diagram and pie chart.

2 Answer **any two** of the following: **8×2=16**

- (a) Define Evaporation. Discuss the factors affecting evaporation.
- (b) Describe the construction and working, and advantages, disadvantages of Multiple Effect Evaporators.

- (c) Write a note on film Evaporator. Give the construction and working of falling film evaporator.
- 3** Answer **any four** of the following: **4×4=16**
- (a) Explain the principle and procedure of molecular distillation. What are its applications?
  - (b) Discuss Raoult's law.
  - (c) Write a note on Flash Distillation.
  - (d) What are applications of distillation in pharmacy?
  - (e) Define any two :
    - (a) Plate efficiency
    - (b) Azeotropic and Extractive distillation
    - (c) Relative volatility
- 4** Answer **any two** of the following: **8×2=16**
- (a) Classify dryers. Discuss theory of Drying.
  - (b) Give the principle and working of Fluidized bed dryer with the help of labelled diagram.
  - (c) Write a detailed note on special type of drying methods with examples.
- 5** Answer **any four** of the following: **4×4=16**
- (a) Discuss various types of reactors.
  - (b) Importance of Auto mated process control system in pharmacy.
  - (c) Explain feedback and feed-forward control.
  - (d) Computer added manufacturing.
  - (e) Devices for level measurement.