

**B. PHARM.**  
**(SEM III) THEORY EXAMINATION 2022-23**  
**PHARMACEUTICAL ENGINEERING**

*Time: 3 Hours**Total Marks: 75***Note:** Attempt all Sections. If require any missing data; then choose suitably.**SECTION A**

- 1. Attempt all questions in brief. 2 x 10 = 20**
- a. Describe Attrition & Impact.
  - b. Name any two mechanisms of Size Separation.
  - c. Define the term Entrainment. How it is prevented?
  - d. Compare Heat-interchanger and Heat-exchanger.
  - e. Differentiate between Bound Moisture & Unbound Moisture.
  - f. What is Convective and Diffusive Mixing?
  - g. Discuss Impingement & Entanglement.
  - h. What are Filter Aids? Discuss in brief.
  - i. Define Corrosion. Explain the effect of pH on corrosion.
  - j. Name the materials comes under Inorganic and organic non-metals.

**SECTION B**

- 2. Attempt any two parts of the following: 10 x 2 = 20**
- a. Draw a neat sketch of Fluid Energy Mill. Describe principle, construction, working and applications of Hammer Mill.
  - b. Explain principle, construction, and operational details of Freeze Drying. Summarize its pharmaceutical applications also.
  - c. Categorize the types of Filters. Describe principle, construction and working of Plate & Frame Filter Press.

**SECTION C**

- 3. Attempt any five parts of the following: 7 x 5 = 35**
- a. Derive an equation to determine velocity of fluid at orifice by using Orifice meter.
  - b. Classify Evaporators. Describe construction and working of Horizontal Tube Evaporator.
  - c. Distinguish between Mixing and Blending. Describe construction, working and uses of Silverson Emulsifier.
  - d. Compare and contrast Poiseuille's & Darcy's theory of filtration, Express Kozeny-Carman equation also.
  - e. Define Centrifugation. Explain theory of centrifugation with respect to centrifugal effect.
  - f. Discuss about the principle, construction, working and uses of Fractional Distillation.
  - g. Write a descriptive note on types of Stainless Steel, composition, and its uses.