

SEM-II, Pharmaceutical Engineering

Chapter 1: Fluid Flow

1. What is Reynolds number? Show how it is dimensionless. What is its significance in fluid flow?
2. Classify flow meters. Explain Rotameter with general design & working.
3. What is manometer? Explain anyone in detail.
4. Derive the Bernoulli's equation with proper assumption.
5. Differentiate Orifice meter and Venturimeter

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Chapter 2: Size Reduction

1. Describe the construction, working, advantages, and disadvantages of fluid energy mill.
2. Explain the factors related to feed –material influencing size reduction.
3. Explain the theories related to the size reduction of a powder.
4. Describe the mechanisms and modes of size reduction of solid.
5. Explain with the help of diagram the construction and working of a ball mill.
6. Explain with the help of diagram the construction and working of a rotary cutter mill.
7. Write a note on colloid mill.
8. Explain with the help of diagram the construction and working of a triple roller mill.

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Chapter 3: Size separation

1. Enlist official standards of powders. Discuss the principle and operation of Cyclone Separator.
2. Describe the specifications of standard sieves as per I.P.
3. Explain various grades of powders official in pharmacopeia.
4. Explain principle, construction, working advantages and disadvantages of Sieve Shaker machine.
5. Describe the method of size separation using a Rotax Shakeer Shaker screen.

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Chapter 4: Centrifugation

1. Classify industrial centrifuges. Write construction and working of a perforated basket centrifuge.
2. Describe the theory of centrifugation.
3. Describe the construction and working of a centrifuge used for the separation of slurry containing high percentage of solids.
4. Write a note on perforated basket centrifuges.
5. Write a note on classification of Centrifuges.

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Chapter 5: Drying

1. Distinguish between drying and evaporation.
2. Describe the drying rate curve for a nonporous granular solid.
3. Discuss the construction, working, advantages and disadvantages of spray dryer.
4. Explain the operation and application, use, advantages of drum dryer.
5. Describe principle, construction, and working of a fluidized bed dryer.
6. Compare the operation in detail of spray dryer and tray dryer.
7. Define drying. Differentiate bound moisture and free moisture content.
8. Classify dryers giving suitable examples.

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Chapter 6: Mixing

1. Define mixing and explain the construction and working of a ribbon blender for mixing solids.
2. Draw the neat sketch of the sigma blade blender, use, advantages and its working.
3. Discuss the factors influencing Mixing.
4. Write a note on Mixing Process-Steps and mechanism in solid/solid mixing.
5. Differentiate Liquid and Solid mixing.
6. Discuss in brief about Double cone and V-cone blender.
7. Describe the construction, working, advantages and use of a Silverson mixer-emulsifier with the help of a neat diagram.
8. Discuss the various flow pattern during liquid/liquid mixing.
9. Write a note on Mixing devices.
10. Define Mixing and explain the mechanisms of mixing.
11. Explain principle and working Jet Mixer.

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Chapter 7: Corrosion

1. Explain the terms 'pitting corrosion' and 'galvanic corrosion'.
2. How oxide films are formed? What are its advantages?
3. Highlight the role of oxygen in the corrosion of metals.
4. What is corrosion? Mention the factors that influence rate of corrosion.
5. Discuss electrochemical theory of corrosion.
6. Describe the mechanism of corrosion of iron.
7. Define corrosion. Give its causes. Classify corrosion.
8. What is corrosion? Name the various types of corrosion. How can corrosion be prevented?