

INSTITUTE OF TEACHING AND RESEARCH IN AYURVEDA

[INSTITUTE OF NATIONAL IMPORTANCE]

MINISTRY OF AYUSH, GOVERNMENT OF INDIA

B. PHARM. (AYU.) III YEAR

PHARMACEUTICAL ENGINEERING

Question Bank

● **Size reduction**

[10 Mark]

- 1) Explain in detail cutting mill.
- 2) Explain in detail roller mill.
- 3) Explain in detail hammer mill.
- 4) Explain in detail ball mill.
- 5) Explain in detail fluid energy mill.
- 6) Explain in detail colloidal mill.
- 7) Explain in detail energy requirements for the size reduction.
- 8) Explain in detail various mechanisms for the size reduction.
- 9) Explain in detail factor affecting the size reduction.
- 10) Explain in detail the objectives of size reduction.
- 11) Explain in detail the law of ___ for energy requirement for the size reduction.
- 12) Explain factors affecting selection of Size reduction process.
- 13) Discuss objects, significance and application of Size reduction in pharmacy Describe mechanisms of size reduction with examples and enumerate applications of size reduction in Pharmaceutical Industry.

[5 Marks]

- 1) Write advantages and disadvantages of cutting mill.
- 2) Write advantages and disadvantages roller mill
- 3) Write advantages and disadvantages hammer mill
- 4) Write advantages and disadvantages ball mill
- 5) Write advantages and disadvantages fluid energy mill
- 6) Write advantages and disadvantages colloidal mill.

[2 Marks]

- 1) What is the principle of Colloid mill
- 2) Explain principle of any size reduction mill.
- 3) Explain application of hammer mill.
- 4) Explain application of any one Mill.
- 5) Write advantages of any one mill.
- 6) Write Disadvantages of any mill.
- 7) Define Size reduction.

● **Size separation.**

[10 Mark]

- 1) Explain in detail standards of sieve.
- 2) Explain in detail methods of size separation.
- 3) Explain in detail Gyrotory methods of size separation.
- 4) Explain in detail Elutriation method.
- 5) Explain in detail cyclone separator.
- 6) Explain difference between size reduction and size separation.
- 7) Define the term Size separation, discuss various mechanisms used for achieving Size separation.

[5 Marks]

- 1) Write advantages and disadvantages Sieves.
- 2) Write advantages and disadvantages of any size separation process.

[2 Marks]

- 1) Write advantages of Cyclone separator
- 2) Write advantages of any size separation machine.
- 3) Define size separation.

● **Mixing.**

[10 Mark]

- 1) Explain in detail objectives of mixing..
- 2) Describe the functioning of Agitator Mixer and Tumbling Mixer for powders
- 3) Explain principle and mechanism of Powder mixing.
- 4) Explain Double cone mixer in detail.
- 5) Define Mixing, explain various objectives and types of mixtures.
- 6) Describe the functioning of Agitator Mixer and Tumbling Mixer for powders.
- 7) Discuss theory of Mixing for semi-solids
- 8) Describe propeller mixer.
- 9) Explain in detail turbine mixer
- 10) Explain in detail paddle mixer
- 11) Explain in detail ribbon mixer
- 12) Explain in detail twin shell mixer
- 13) Explain in detail triple roller mill
- 14) Explain in detail colloidal mill.
- 15) Explain in detail any mixing mill

[5 Marks]

- 1) Write advantages and disadvantages Sieves.
- 2) Write advantages and disadvantages of any size separation process.

[2 Marks]

- 1) What is Positive mixer
- 2) Give the principle of Negative mixer.

- 3) Differentiate between twin shell mixer and double cone mixer

● **Small Scale emulsifier.**

[10 Mark]

- 1) Explain principle, construction, working mechanism, applications along with appropriate diagram of Silverson Emulsifier.
- 2) Explain Explain principle, construction, working mechanism, applications along with appropriate diagram of Ultrasonic emulsifier.
- 3) Explain in detail the Q. P. Emulsifier.

[5 Marks]

- 1) Write advantages and disadvantages any emulsifier
- 2) Draw the diagram of any emulsifier

[2 Marks]

- 1) What is emulsifier.

● **Leaching & Extraction**

[10 Mark]

1. Enlist various types of Extraction procedures and explain factors affecting choice of such process.
2. Explain Industrial methods of extraction.
3. Explain in detail percolation.
4. Explain in detail Factor affecting selection of an extraction process
5. Explain simple extraction process.
6. Explain theory of extraction.

[5 Marks]

Menstrum.
Decoction.
Elutriation.
Percolation.
Maceration

[2 Marks]

Define extraction.

Define Leaching.

Explain why the materials size reduced / pressed while doing extraction.

● Evaporation

[10 Mark]

1. Explain in detail any one evaporator.
2. Define evaporation. Write a note on Heat transfer in evaporator.
3. Discuss factors affecting the process of Evaporation.
4. Explain about Natural circulation Evaporators in detail.

[5 Marks]

- 1) write advantages and disadvantages of any evaporator.

[2 Marks]

- 1) write advantages of any evaporator
- 2) Write principal of any evaporator.
- 3) Define evaporation.

● Distillation & Condensation

[10 Mark]

1. Explain any distillation process.
2. Differentiate between rectification distillation and azeotropic distillation.
3. E

[5 Marks]

- 1) write advantages and disadvantages of any distillation.
- 2) Explain advantages of Distillation.
- 3) Explain the need of distillation and condensation in Pharma industry.
- 4) Define distillation and explain distillation under reduced pressure.

[2 Marks]

- 1) write advantages of any distillator.
- 2) Give any two disadvantages of Steam distillation.
- 3) What is the difference between rectification distillation and azeotropic distillation ?
- 4) Differentiate between distillation and condensation
- 5) Define Molecular distillation

● Drying

[10 Mark]

1. Explain in detail any drier.
2. Write advantages, disadvantages, structure and function of vacuum dryer.

[5 Marks]

1. write advantages and disadvantages of any dryer.
2. Explain the diagrammatic view of any dryer.
3. Differentiate between drum dryer and tunnel dryer.
4. Advantages and disadvantages of freeze drying.

[2 Marks]

1. What is the application of Fluidised bed dryer ?
2. Disadvantages of freeze drying.
3. Write advantages of any dryer.
4. Define drying

● **Crystallization**

[10 Mark]

1. Explain theory of crystallization.
2. Explain the mier's theory of supersaturation with appropriate drawings.
3. Explain in detail tank crystallizer with special precaution to be taken
4. Explain circulating magma crystallizer.

[5 Marks]

1. Explain in detail Swenson Walker Crystallizer.
2. Define and classify the Crystallizers on the basis of their mechanism with examples.
3. Explain with diagram vacuum crystallizer
4. Explain in detail any crystallizer.

[2 Marks]

1. What is Crystallization?
2. Give advantages of vacuum crystallizer.
3. Limitations of Mier's Super saturation theory.