

PARUL UNIVERSITY
FACULTY OF PHARMACY
B. Pharm., Winter 2023-24 Examination

Semester: 3**Subject Code: BP304T****Subject Name: Pharmaceutical Engineering****Date: 31/01/2024****Time: 10:00am to 1:00pm****Total Marks: 75****Instructions:**

1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1 Multiple Choice Questions (MCQs) (1 Mark Each)**(20)**

1. Reynolds number is indicative of one of the following
 - a) Fluid flow type
 - b) Frictional factor
 - c) Pumping rate
 - d) The roughness of the pipe
2. Which type of head is measured using pitot-tube?
 - a) Kinetic velocity head
 - b) Pressure head
 - c) Static velocity head
 - d) Total head
3. Which mill is preferred for wet grinding?
 - a) Colloid mill
 - b) Hammer mill
 - c) Roller mill
 - d) Rotary cutter mill
4. Which are the modes observed in a ball mill for size reduction?
 - a) Compression and impact
 - b) Cutting and compression
 - c) Impact and attrition
 - d) Attrition and cutting
5. Brushing method hastens the movement of one of the following materials
 - a) Coarse materials
 - b) Sticky materials
 - c) Dry materials
 - d) Light materials
6. Fourier's law is applicable to one of the following types of heat flow
 - a) Conduction
 - b) Convection
 - c) Radiation
 - d) Emission
7. Which evaporator is used to concentrate insulin, liver extract and vitamins?
 - a) Climbing film evaporator
 - b) Falling film evaporator
 - c) Steam jacketed kettle
 - d) Vertical tube evaporator
8. What is the source of heat in most of the evaporators?
 - a) Coal
 - b) Oil bath
 - c) Hot water
 - d) Steam
9. The separation of liquid by distillation is based on one of the following principles
 - a) Boiling point
 - b) Miscibility
 - c) Vapor pressure
 - d) Viscosity

- 10 Distillation does not involve in one of the following processes
- a) Evaporation
 - b) Extraction
 - c) Purification
 - d) Separation
- 11 When the paddle is used for the mixing of liquid the flow patter of fluid is
- a) Axial & Tangential
 - b) Axial or Tangential
 - c) Radial & Tangential
 - d) Radial or Tangential
- 12 Which one of the following is NOT an example for inertial forces?
- a) Electrostatic forces
 - b) Surface forces
 - c) London forces
 - d) Van der Waals forces
- 13 For fixing the effective drying conditions, which processing factor is essential?
- a) Height
 - b) Pressure
 - c) Humidity
 - d) Temperature
- 14 Which one of the following dryer is known as Lyophilizer?
- a) Freeze dryer
 - b) Spray dryer
 - c) Fluidized bed dryer
 - d) Vacuum dryer
- 15 Which product is not dried by a spray dryer?
- a) Bacterial & viral cultures
 - b) Fruit juice
 - c) Lactose
 - d) Serum
- 16 Corrosion of metals is fairly high in one of the following medium
- a) Non-aqueous
 - b) Neutral
 - c) Acidic
 - d) Alkaline
- 17 A centrifugal method is used for one of the following forces
- a) Mixing
 - b) Purification
 - c) Sizing
 - d) Separation
- 18 Centrifugation is useful in one of the following types of dispersions
- a) Coarse dispersions
 - b) Colloidal dispersions
 - c) Molecular dispersions
 - d) Multi – Size dispersions
- 19 In the clarification process, which factor is more important
- a) Pore size of the filter media
 - b) Depth of the media
 - c) Surface area of the filter
 - d) Volume of slurry
- 20 Which one of the following is not a mechanism of filtration?
- a) Entanglement
 - b) Impact
 - c) Impingement
 - d) Straining

Seat No: _____

Enrollment No: _____

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Q.2 Long Answers (any 2 out of 3) (10 Mark Each)

(20)

1. a) Write short note on Venturimeter with labeled diagram.
b) Describe in detail factors influencing evaporation.
2. Explain fluidized bed dryer in detail.
3. Explain the construction, working, advantages and disadvantages of filter press with diagram.

Q.3 Short Answers (any 7 out of 9) (5 Mark Each)

(35)

1. What is Reynold's number? Explain its importance with applications.
2. Discuss different modes of size separation.
3. Give a short note on Fourier's law.
4. Distinguish evaporation and distillation.
5. Discuss the mechanisms of Liquid & Semisolid Mixing.
6. Outline the merits and demerits of Double Cone Blender.
7. Give pharmaceutical applications of centrifugation.
8. Define and classify corrosion. Enlist causes of corrosion.
9. Outline the advantages and disadvantages of size reduction process.