

(3 Hours)

Total Marks: 75

Question No. 1. Multiple choice question

1×20=20 Marks

1. Pitot tube is used to measure of _____
 - A. Velocity
 - B. Speed
 - C. Flow
 - D. Density
2. Contraction point in orifice meter is known as
 - A. Throat of venturi
 - B. **Vena contracta**
 - C. Through column
 - D. Coefficient of contraction
3. The ratio of initial particle size to final particle size is defined as
 - A. Reduction ratio
 - B. Kick's ratio
 - C. Rittinger's ratio
 - D. Bond's ratio
4. Which of the quality control parameter is important for size reduction of potent materials in formulation of dosage forms?
 - A. Content uniformity
 - B. Friability
 - C. Hardness
 - D. strength
5. Rate of evaporation is _____:
 - A. Directly proportional to temperature of liquid
 - B. Independent of temperature of liquid
 - C. Inversely proportional to temperature of liquid
 - D. Directly proportional to humidity of surrounding air
6. Which of the following factors do NOT affect the rate of evaporation?
 - A. Temperature of liquid
 - B. Humidity of surrounding air
 - C. Depth of liquid
 - D. Surface of liquid
7. Stefan Boltzmann law is applicable for heat transfer by _____
 - A. Conduction
 - B. Convection
 - C. Radiation
 - D. Conduction & Radiation combined
8. In shell & tube exchanger the fluid flowing outside the tube is called as
 - A. Tube fluid
 - B. Concentric fluid
 - C. Current fluid
 - D. Shell fluid
9. In Vacuum Distillation, Substance boils at a/an:
 - A. High Pressure
 - B. Temperature below its boiling point
 - C. Exact temperature at boiling point of liquid
 - D. Temperature slightly above its boiling point
10. One of the theories is NOT applicable to distillation:
 - A. Graham's law of diffusion
 - B. Law of conservation of energy
 - C. Law of conservation of matter
 - D. Raoult's Law
11. Which product is NOT dried by spray dryer?
 - A. Serum
 - B. Fruit Juice
 - C. Lactose
 - D. Bacterial & viral cultures
12. Which is most essential factor for effective drying?
 - A. Height
 - B. Weight
 - C. Humidity
 - D. Pressure

13. Which one of the following rate is observed in mixing of solids?
 - A. First order law
 - B. Zero order law
 - C. Second order law
 - D. Mixed order law
14. Which type of mixture is easily formed?
 - A. Positive
 - B. Negative
 - C. Neutral
 - D. Ampholytic
15. Which of the following is NOT a common filtration method?
 - A. Gravity filtration
 - B. Vacuum filtration
 - C. Centrifugation
 - D. Distillation
16. What is the term for the solid material collected on the filter medium during filtration?
 - A. Filtrate
 - B. Precipitate
 - C. Residue or cake
 - D. Supernatant
17. Centrifugal method is used for one of the following processes:
 - A. Mixing
 - B. Purification
 - C. Separation
 - D. Sizing
18. Centrifugation is based on which law?
 - A. Patrick's Law
 - B. McLaren's law
 - C. Stoke's Law
 - D. Stain's Law
19. Corrosion of metals is fairly high in one of the following medium:
 - A. Acidic
 - B. Alkaline
 - C. Neutral
 - D. Non-Aqueous
20. Monel is an example for _____ alloy
 - A. Aluminium
 - B. Nickel
 - C. Ferrous
 - D. Copper

Question No. 2: Answer any TWO of the following

10×2= 20 Marks

- A. What is corrosion? Explain different theories of corrosion.
- B. Discuss the process of freeze dryer
- C. Enlist different mechanisms of the size reduction process along with an example of equipment for each mechanism. Describe the construction, and working of an Air Separator.

Question No. 3: Answer any SEVEN of the following

5×7= 35 Marks

- A. Classify flow meters. Explain in short rotameter.
- B. Explain the principle, construction and working of horizontal tube evaporator
- C. Elaborate on different mechanisms of heat transfer processes
- D. Explain the principle, construction and working of centrifugal molecular distillation
- E. Enlist equipment's used for mixing of solids and explain any one
- F. Explain construction and working, advantages and disadvantages of ribbon blade mixer
- G. Add an account on filter media
- H. Define centrifugation and give its principle
- I. Explain Aluminum and its alloys