

Question Paper

Exam Date & Time: 03-Jan-2024 (02:00 PM - 05:00 PM)



MANIPAL ACADEMY OF HIGHER EDUCATION

Pharmaceutical Engineering [PCE-BP304T - S3]

Marks: 75

Duration: 180 mins.

I Multiple Choice Questions (MCQs)

Answer all the questions.

Section Duration: 30 mins

- 1) The rate of evaporation increases if surface area of liquid is (1)
A. Large
B. Small
C. Moderate
D. None of the above

- A
- B
- C
- D

- 2) Which of the following hydrodynamic method for measurement of rate of flow of fluids is also called as variable head meter? (1)
A. Manometer
B. Venturi meter
C. Pitot tube
D. Rotameter

- A
- B
- C
- D

- 3) A ball mill uses _____ (1)
A. Impact
B. Attrition
C. Impact & Attrition
D. None of the mentioned

- A
- B
- C
- D

- 4) Which of the following evaporator is also known as rinsing film evaporator? (1)
A. Horizontal tube evaporator
B. Steam jacketed kettle
C. Climbing film evaporator
D. Forced circulation evaporator

- A
- B

C
D

- 5) Which of the following uses attrition? (1)
A. Ball mill
B. Plate mill
C. Roller mill
D. All of the mentioned

A
B
C
D

- 6) Fourier's law is applicable to one of the following types of heat flow. (1)
A. Conduction
B. Convection
C. Emission
D. Radiation

A
B
C
D

- 7) Heat transfer from a metal wall does NOT involve one of the following mechanism. (1)
A. Conduction
B. Convection
C. Emission
D. Radiation

A
B
C
D

- 8) Which equation is useful in the analysis of simple distillation? (1)
A. Rayleigh Equation
B. Haigen Poiseuille's equation
C. Bernoulli's equation
D. Mier's theory

A
B
C
D

- 9) Which of the following is NOT true about plastics? (1)
A. Resistant to weak acids
B. Low thermal resistance
C. Resistant to weak acids
D. Low rate of expansion

A
B
C
D

- 10) Which of the statement is correct for Carbon steel.... (1)
A. Strong steel; alloy of iron, contains < 1.5% carbon
B. Mild steel; alloy of iron, contains < 1.5% carbon

- C. Strong steel; alloy of iron, contains > 1.5% carbon
- D. Mild steel; alloy of iron, contains > 1.5% carbon

A
B
C
D

- 11) How does the heat transfer occur in the indirect-heat continuous dryers? (1)
- A. Conduction
 - B. Convection
 - C. Radiation
 - D. Circulation

A
B
C
D

- 12) When are drum dryers used? (1)
- A. When the material is too thick for spray dryer and too thin for rotary dryer
 - B. When the material is too thick for rotary dryer and too thin for spray dryer
 - C. When the material is not biodegradable
 - D. When large crystal size is to be obtained

A
B
C
D

- 13) Uneven mixing leads one of the following problems in tablets manufacture. (1)
- A. Content uniformity variation
 - B. Disintegration time fluctuates
 - C. Friability problems
 - D. Poor flow of granules

A
B
C
D

- 14) Solid mixing does NOT differ from liquid mixing in one of the following ways. (1)
- A. Flow currents are not possible
 - B. Homogeneity of components
 - C. Large sample is required for analysis
 - D. Mixing requires high power

A
B
C
D

- 15) What are applications of centrifugation (1)
- A. To separate two miscible substances and analyse the hydrodynamic properties of macromolecules
 - B. To separate two miscible substances and water treatment
 - C. Purification of mammalian cells and water treatment
 - D. Analyze the hydrodynamic properties of macromolecules and water treatment

A

- B
- C
- D

16) What is the principle of Centrifugation? (1)
A. Sedimentation principle
B. Evaporation principle
C. Filtration principle
D. Size reduction principle

- A
- B
- C
- D

17) For which phase filter aid is used to filter? (1)
A. Gas and liquid
B. Solid and liquid
C. Gas
D. Gel

- A
- B
- C
- D

18) The process used to separate insoluble particles from liquids is (1)
A. Drying
B. Filtration
C. Sieving
D. Extraction

- A
- B
- C
- D

19) What is cold filtration? (1)
A. To quickly cool a solution
B. Prevent bacteria during filtration
C. Minimize crystal formation during filtration
D. Prevent yeast during filtration

- A
- B
- C
- D

20) What is the disadvantages of the filter press? (1)
A. The filtering media can be used repeatedly
B. Operation and maintenance is simple
C. It requires less space
D. It is used where the proportion of solid in the liquid to be filtered is about 5% or less

- A
- B
- C
- D

II Long Answers

Answer all the questions.

- 1) Explain principle, construction and working of Ball Mill (10)
- 2) Explain in details the materials used for plant construction (10)

III Short Answers

Answer all the questions.

- 1) Explain simple manometer (5)
- 2) Draw a neat and labelled diagram steam distillation and explain its construction. (5)
- 3) Explain the working, uses & merits of Sieve shaker (5)
- 4) Explain the different mechanisms of solid mixing. What are the factors influencing mixing of solids? (5)
- 5) Explain the principle and working working of a tray dryer. (5)
- 6) Explain the construction and working of perforated type of centrifuge (5)
- 7) What is the use of filter aid? Mention different types of filter media (5)

-----End-----