ate & Time: 02-Jan-2019 (09:30 AM - 12:30 PM)

MANIPAL ACADEMY OF HIGHER EDUCATION

BPharm Semester III - End Semester Examination December 2018
Course Code: PCE-BP304T Course Title: Pharmaceutical Engineering
Date:02-01-2019
Pharmaceutical Engineering [PCE-BP 304T]

Marks: 75 **Duration: 180 mins.**

I Multiple Choice Questions (MCQs)

Answer all the questions. Section Duration: 30 mins

1) Heat exchanges are NOT used in one of the following unit operations.

1) Crystallization 2) Drying 3) Evaporation 4) Size separation (1)

Correct option is: 4

2) In the plate and frame filter press, which is the mechanism involved in the filtration?

1) Cake filtration 2) Depth filtration 3) Electrostatic filtration 4) Surface filtration (1)

Correct option is: 4

3) Which heater is a highly efficient heat interchanger?

1) Double pipe heater 2) Multi pass heater 3) Tubular heater 4) Two pass floating head heater (1)

Correct option is: 4

4) Which one of the following is NOT a mechanism of filtration?

1) Entanglement 2) Impact 3) Impingement 4) Straining (1)

Correct option is: 2

5) Which of the following evaporator is used in pharmaceutical, pulp and paper industry?

1) Horizontal tube 2) Steam jacketed 3) Climbing film evaporator 4) forced circulation (1)

evaporator kettle

Correct option is: 1 evaporator

6) If solution contain thermolabile substance, then which of the following distillation method is preferred?

1) Vacuum distillation 2) Fractional distillation 3) Simple distillation 4) Steam distillation

Correct option is: 1 (1)

7) Which equation is useful in the analysis of simple distillation?

1) Rayleigh Equation Haigen 2) Poiseuille's equation 3) Bernoulli's equation 4) Mier's theory

Correct option is: 1 (1)

8) Which one of the following is not a physical factor affecting selection of materials for Pharmaceutical plant construction?

1) Mass 2) Wear properties 3) Thermal conductivity 4) Corrosion of material of construction

Correct option is: 4 (1)

9) Fourier's law is applicable to one of the following types of heat flow.

1) Conduction 2) Convection 3) Emission 4) Radiation

Correct option is: 1 (1)

10) Borosilicate glass is also known as

1) Type I 2) Type II 3) Type III 4) Type IV

Correct option is: 1 (1)

11) Which force is mainly used in the cyclone separator for the separation of solids from fluids?

1) Gravitational 2) Centrifugal 3) Tension 4) Spring

Correct option is: 2 (1)

12) Hammer mill works on which principle?

(1)

1) Attrition 2) Impact 3) Cutting 4) Crushing

Correct option is: 2

Trough is stationary in the following mixer.

1) Barrel mixer 2) Double cone blender 3) Ribbon mixer 4) Zigzag mixer (1)

Correct option is: 3

14) Improper mixing mainly leads to one of the following problems in the manufacture of tablet dosage forms?

1) Content uniformity variation 2) Disintegration time fluctuates 3) Friability problems 4) Poor flow of granules (1)

Correct option is: 1

15) What is the principle difference that influences centrifugation process?

1) Viscosities 2) Interfacial tensions 3) Particle sizes 4) Densities (1)

Correct option is: 4

16) Centrifugation is mainly used for one of the following process.

1) Separation 2) Drying 3) Mixing 4) Sizing (1)

Correct option is: 1

17) Which property of mercury is responsible for its use in manometers?

1) High surface tension 2) High vapour pressure 3) Low specific gravity 4) Low vapour pressure (1)

Correct option is: 4

18) ..... experiments is used for the study of flow of fluids?

1) Bernoulis 2) Orifice meter 3) Reynolds 4) Stokes (1)

Correct option is: 1

19) Freeze dryer is also as .....

1) Fluidized bed dryer 2) Spray dryer 3) Lyophilizer 4) Tray dryer

Correct option is: 3 (1)

20) In which of the following periods of drying hot spots are formed?

1) Constant rate period 2) Second falling period 3) Initial readjustment period 4) First falling period

Correct option is: 4 (1)

II Long Answers

Answer all the questions.

1) a) Explain the various aspects of drying rate curve.
b) Explain the principle, construction and working of super centrifuge. (10)

2) Explain the factors which should be considered during selection of material for pharmaceutical plant construction. (10)

III Short Answers

Answer all the questions.

1) Explain the principle, construction and working of colloid mill. (5)

2) Discuss the construction and working of air separator. (5)

3) Explain Reynolds number and its significance. (5)

4) Write short notes on construction and working of sigma blade mixer. (5)

5) Explain the working of apparatus used in simple distillation process (5)

6) Describe the principle and construction of Climbing film evaporator (5)

7) Draw a neat and labelled diagram of a shell-and-tube heat exchanger and explain its construction. (5)

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