

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

End Semester Examination – Summer 2022

Course: B. Pharmacy

Sem: III

Subject Name: Pharmaceutical Engineering

Subject Code: BP304T

Max. Marks: 75

Date: 30/07/2022

Duration: 3.45 Hrs.

Instructions –

- 1. All questions are compulsory**
- 2. Answers to MCQs should be written in full sentences**
- 3. Draw diagrams / figures wherever necessary**
- 4. Figures to right indicate full marks**

Q. 1. Multiple Choice Questions (MCQs) = 20 x 1 = 20 (All the questions are compulsory)

- 1) When principle of conservation of energy is applied to flow of fluids then resulting equation is known as
 - a) Reynold's Number
 - b) Bernoulli's theorem
 - c) Hagen-poiseuille's equation
 - d) Kick's theory
- 2) If the vapour pressure of the liquid is more the evaporation rate is
 - a) High
 - b) Low
 - c) Medium
 - d) Too low
- 3) Mechanism of fluid energy mill is
 - a) Impact pressure
 - b) Attrition and Impact
 - b) Cutting
 - d) None of the above
- 4) Climbing film evaporator also called as
 - a) Falling film evaporator
 - b) Triple effect evaporator
 - c) Rising film evaporator
 - d) Forced circulation
- 5) Which of the following is not an advantage of size reduction?
 - a) Improved dissolution rate
 - b) Improved physical stability
 - c) Improved absorption rate
 - d) Drug degradation
- 6) Which of the following theory not describe rate of filtration?
 - a) Darcy's Law
 - b) Poiseuille's equation
 - c) Kozeny carman equation
 - d) Noye's Whitney equation
- 7) Flow pattern in liquid-liquid mixing
 - a) Radial flow
 - b) Tangential flow
 - c) Longitudinal flow
 - d) All of the above
- 8) Alcohol and water is example of
 - a) Positive mixture
 - b) Negative mixture

- c) Neutral mixture
d) None of the above
- 9) Centrifugation is used for....
a) Mixing
b) Purification
c) Separation
d) Sizing
- 10) Which of the following is type of stainless steel?
a) Martensitic
b) Ferritic
c) Austenitic
d) All of the above
- 11) Which of the following is not a filter aid?
a) Diatomaceous earth
b) Perlite
c) Cellulose
d) Cotton
- 12) Austenitic consists of
a) 13 to 20% chromium +6 to 22% nickel +0.1 to 0.25% carbon
b) 12 to 20% chromium +2% Nickel+0.2 to 0.4 % carbon
c) 20 to 40% chromium+12% nickel +1 to 25 carbon
d) 15 to 30 % chromium+0.15%carbon
- 13) Impingement, enlargement and straining are related to
a) Mixing
b) Centrifugation
c) Filtration
d) All of these
- 14) What is pore size of filtration membrane to remove bacteria?
a) 0.25 μm
b) 0.27 μm
c) 0.22 μm
d) 0.26 μm
- 15) Mixing device technically called as
a) Impellers
b) Turbines
c) Paddles
d) All of these
- 16) Raoult's law is related to
a) Vapour pressure
b) Atmospheric pressure
c) Osmotic pressure
d) All of the above
- 17) Heat transfer place as per
a) Zeroth law of thermodynamics
b) First law of thermodynamics
c) Second law of thermodynamics
d) Kirchhoff's law
- 18) Corrosion of metal involves
a) Physical reaction
b) Chemical reaction
c) Both a) and b)
d) None of the above
- 19) Free moisture content is
a) Total water content minus equilibrium moisture content.
b) Total water content plus equilibrium moisture content
c) Ratio of total water content to the equilibrium moisture content
d) Total water present in solid minus water in environment.
- 20) Tunnel dryer is variant of
a) Rotary drum dryer
b) Fluidized bed dryer

c) Tray dryer

d) Spray dryer

Q. 2. Long Answers) = 2 x 10 = 20 (Answer 2 out of 3)

- 1) Discuss in detail various modes of heat transfer. Draw a neat diagram of shell and tube heat exchanger and explain its working.
- 2) Define distillation, write application of distillation and explain construction working laboratory scale vacuum distillation unit.
- 3) Define and classify evaporation and Describe in detail factor affecting evaporation.

Q. 3. Short Answers = 7 x 5 = 35 (Answer 7 out of 9)

- 1) Write a note on theories of filtration.
- 2) Explain principle, construction and working of rotameter.
- 3) Explain theories of corrosion.
- 4) Discuss the principle and application of centrifugation.
- 5) Explain in detail multiple effect evaporators.
- 6) Write in detail factors affecting size reduction.
- 7) How will you carry out conveying of solid?
- 8) Write a note on lyophilizer.
- 9) List the equipments used for solid mixing in pharmaceutical industry. explains construction and working of sigma blade mixer.

-----END OF THE PAPER-----