Seat No: _____ Enrollment No: _____

PARUL UNIVERSITY
FACULTY OF PHARMACY
B. Pharm., Winter 2019-20 Examination

Semester: 3 **Date: 25/11/2019**
Subject Code: BP304T **Time: 2:00pm to 5:00pm**
Subject Name: Pharmaceutical Engineering- Theory **Total Marks: 75**

Instructions:
1. Figures to the right indicate maximum marks.
2. Make suitable assumptions wherever necessary.

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

1. Which are the modes observed in ball mill for size reduction
   a) Impact b) Attrition
   c) Cutting d) Both A & B
2. This is not a type of sieve used in pharmaceutical process
   a) Coated Sieve b) Woven wire sieve
   c) punched plates d) bolting cloth sieve
3. If Re < 2100 the flow is
   a) Turbulent b) Laminar
   c) Laminar to Turbulent d) None of the above
4. Pressure difference can be measured with
   a) Venturimeter b) Orifice Meter
   c) Rotameter d) Manometer
5. Separation of volatile oil is performed by
   a) Filtration b) Evaporation
   c) Distillation d) Crystallization
6. It is a static bed dryer
   a) Spray Dryer b) Drum Dryer
   c) Freeze Dryer d) Fluidized Bed Dryer
7. The fastest rate of drying can be achieved with
   a) Tray Dryer b) Drum Dryer
   c) Fluidized Bed Dryer d) Freeze Dryer
8. This is the example of non-ferrous metal
   a) Steel carbon b) Stainless steel
   c) Aluminum d) All of the above
9. Centrifugal force depends on
   a) Mass b) Velocity
   c) Distance from the center d) All of the above
10. Flow of heat is not applicable in
    a) Drying b) Crystallization
    c) Refrigeration d) Centrifugation
11. This is the example of filter aid
    a) Talc b) Charcoal
    c) Paper pulp d) All of the above
12. Membrane filter is used for
    a) Parental product's filtration b) Purifying aerosols
    c) Removing bacteria d) All of the above
13. Rate of evaporation will increase with
    a) Decreasing the temperature b) Increased surface area
    c) Increased environmental pressure d) All of the above
14. This sieve will have the maximum number of meshes per unit area
    a) 10 b) 22
    c) 60 d) 200

15. Triple roller mill used in the production of
    a) Tablet
    b) Ointment
    c) Granules
    d) Syrup
16. Kick's theory explains
    a) Evaporation
    b) Filtration
    c) Centrifugation
    d) Energy consumption for size reduction
17. Distillation does not includes
    a) Heating
    b) Transfer of vapor
    c) Crystallization
    d) Condensation
18. The stage involved in spray drying
    a) Atomization
    b) Freezing
    c) Fluidization
    d) Solidification of water
19. It is not used for fluid transport
    a) Conveyor belt
    b) Pipes
    c) Valves
    d) Pumps
20. Stainless steel is
    a) Corrosive
    b) Heat sensitive
    c) Fragile
    d) A metal having good tensile strength

Q.2 Long Answers (any 2 out of 3) (10 Mark Each) **(20)**

1. Explain in detail: Factors influencing evaporation.
2. Write Principle, construction, working and use of fluidized bed dryer with a proper diagram.
3. Explain the mechanism of filtration and factors influencing filtration.

Q.3 Short Answers (any 7 out of 9) (5 Mark Each) **(35)**

1. Explain the theory of corrosion in brief.
2. Explain principle of distillation under reduced pressure and write its application.
3. Write a note on cyclone separator.
4. Explain factors influencing mixing.
5. Difference between freeze dryer and spray dryer.
6. Enlist Varieties of glasses. Explain types of glass used in pharmaceutical industry.
7. Enlist various theories that explain movement of moisture during drying and explain any two theories.
8. Explain energy losses by Friction and loss due to fittings in fluid flow.
9. Define Black Body and explain Stefan-Boltzmann law for black body.