DR. BABASAHE13 AMBEDKAR TECHNOLOGICAL UNIVERSITY

LONERE - RAIGAD - 402 103

Winter Semester Examination - December - 2018

Course: B.Pharm. **Semester: III**

Subject with Subject Code: Pharmaceutical Engineering (BP304T)

Date: 26/12/2018 **Marks: 75** **Duration: 3hrs**

Instructions: i) All *questions are compulsory*

ii) Figures to the right indicate full marks

iii) Draw the diagrams or flow charts wherever necessary.

Q.No.1 Attempt the following questions All Questions Compulsory) **(20 Marks) -**

1. 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 2% carbon

D. 15 to 30% Chromium + 0.1% carbon

2. Commonly used ball for pebble mill are

i) Round ball, ii) Rods iii) Needle

A. Only i are used C. i & ii are used

B. All ii & iii are used D. All of these are used.

3. Which of the following is false for reflux ratio for High efficiency of fractional distillation?

A. It is controlled by means of a suitable still.

B. It should be low.

C. The quotient of the amount of liquid returning through the column to the amount collected into the receiver during the same interval of time.

D. It should be high.

4. As per Indian official standard Moderately fine powder is

A. All particles must pass through sieve no 44 and 50 % particles pass through sieve no 85.

B, All particles, must pass through sieve no 44 and 60 % particles pass through sieve no 85.

C. All particles must pass through sieve no 44 and 50 % particles pass through sieve no 60.

D. All particles must pass through sieve no 44 and 40 % particles pass through sieve no 85.

5. 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.

6. The Liqu Ll mixing mechanism are

A. Bulk transport
C. Molecular diffusion
B. Turbulent mixing
D. Al] of these

7. The value of Reynold's number for turbulent flow is

A. <2000
C. >4000
B. 2000-4000
D. <1000

8. Ultracentrifuge shows

A. 85000 revolutions per minutes
C. 10000 revolutions per minutes
B. 8S00 revolutions per minutes
D. 850 revolutions per minutes

9. Which of following is not advantage of rising film evaporator?

A. The enhanced heat transfer.
C. Large area for heat transfer is provided.
B. Suitable for foam forming liquids.
D. Not suitable for heat sensitive material.

10. In centrifuges the driving forces for separation of solids are

A. Centrifugal force
C. Gravitational Force
B. Both Centrifugal force ge Gravitational force
D. None of these.

11. As per Fourier's law of convention rate of heat transfer through a uniform material is

A. Directly proportional to the length of uniform material.
B. Inversely proportional to the temperature difference.
C. Inversely proportional to the area of uniform material,
D. Directly proportional to the temperature drop.

12. **Planetary** mixer is are example of

A, Agitator mixer
C. Shear mixer
B. Solid mixer
D. All of these

13. Impingement, Entanglement & Straining are related to

A. Mixing
C. Filtration
B. Centrifugation
D. All of these

14. The conveyers for transportation of solids are

A. Belt conveyors
C. Screw conveyors
B. Chain conveyors
D. All of these

I S. The bacteria used to test membrane filters of Pore size 0.3 Gun) are

A. Scrratia marcescens
C. Pseudotnonas ditninuta
B. Pseudornonas aeruginosa
D. Saccharomyces cerevisiae

16. Ball **mill** shows the principle

A. Impact
C. Impact & attrition
B. Compression
D. Crushing & sharing

17. Mixing device technically called as

A. Impellers
C. Paddles
B. Turbines
D. All of these.

18. The rate of evaporation is

A. **Inversely proportional to** atmospheric pressure

B. Inversely proportional to temperature.

C. Inversely proportional to the vapour pressure of liquid.

D. Inversely proportional to the surface area for evaporation.

19. **Tunnel dryer is variant of**

A. Rotary drum dryer. **C. Tray dryer.**

B. Fluidized bed dryer. D. **Spray dryer.**

20. **Raoult's law is related to**

A. Vapour pressure **C. Osmotic pressure**

B. Atmospheric pressure **D.** All the above

Q.No.2Attempt any TWO questions of the following: (20 Marks)

A] Derive Bernaulli's equation. Discuss its applications.

B] Discuss in detail various modes of heat transfer. Draw a neat diagram of shell & tube heat exchanger & explain its working.

C] List the factors influencing the rate of filtration. Explain construction, working & applications of filter press with a neat diagram.

Q.No.3Attempt any SEVEN questions of the following: (35 Marks)

A] Explain theories of corrosion.

B] Discuss construction, working, application & **advantages of with a neat labeled** diagram of **fluidized bed dryer.**

C] Draw a neat diagram of bag filter & explain its working.

Di Classify evaporators and explain economy of multiple effect evaporators in comparison to single effect evaporator.

E] List the equipments used for solid mixing in pharmaceutical industry. Explain construction & working of Sigma blade mixer.

F] Discuss the principle & application of centrifugation.

G] Discuss any five factors affecting evaporation.

H] With help of a neat diagram explain construction, working, application & advantages of fluid energy mill.

I] What is meant by steam distillation? What are its special **advantages?**

END OF PAPER