

**SET
A**

Full Marks : 75

Marks : 20

$$1 \times 20 = 20$$

PART-A: Objective

1. The mechanism of drum dryer equipment is-
 - a. conduction
 - b. convection
 - c. radiation
 - d. agitation
2. Desorption means-
 - a. Solid losing water till EMC is reached.
 - b. No loss or gain of water.
 - c. Solid gaining water till EMC is reached.
 - d. None of the above
3. Coarse powder passes through sieve number-
 - a. 44
 - b. 120
 - c. 22
 - d. 10
4. If Reynold's number is more than 4000, then the flow is called-
 - a. Laminar
 - b. Turbulent
 - c. Both a & b
 - d. Viscous
5. Which of the following factor doesn't influence filtration-
 - a. Temperature
 - b. Viscosity
 - c. Density
 - d. pH
6. How many liquids are used in differential manometer?
 - a. 4
 - b. 3
 - c. 2
 - d. 1
7. Lead is a suitable material for which corrosive material-
 - a. Dilute Hydrochloric acid
 - b. Sodium chloride
 - c. Nitric acid
 - d. Dilute Sulfuric acid
8. Which of the following is the mechanism of sieve shaker machine-
 - a. Agitation
 - b. Brushing
 - c. Centrifugal force
 - d. Shearing force
9. Aluminum and Zinc dissolves in-
 - a. Acidic pH
 - b. Alkaline pH
 - c. Neutral pH
 - d. Both a and b

10. Sulphates are converted to ferrous sulphide, such type of corrosion is called-
 - a. Fluid corrosion : Localized
 - b. Fluid corrosion : biological
 - c. Fluid corrosion : General
 - d. Wet corrosion
11. $E = Kk \ln d_i/d_n$ is the equation of which law-
 - a. Bonds law
 - b. Rittinger's law
 - c. Kicks law
 - d. Darcy's law
12. Soft glasses are made of-
 - a. Sodium silicate
 - b. Potassium silicate
 - c. Lead silicate
 - d. All of the above
13. Size reduction increases the-
 - a. Surface area
 - b. Flow property
 - c. Mixing
 - d. All of the above
14. Which of the following is not the mechanism of filtration-
 - a. Entanglement
 - b. Porosity
 - c. Impingement
 - d. Straining
15. The sum of reflectivity, absorptivity, and transmissivity is
 - a. 1
 - b. 3
 - c. 2
 - d. 0
16. With increase in surface area, the rate of evaporation -
 - a. Decreases
 - b. Remains same
 - c. Becomes zero
 - d. Increases
17. The principle of perforated basket centrifuge is-
 - a. Sedimentation centrifuge
 - b. Evaporation centrifuge
 - c. Filtration centrifuge
 - d. Condensation centrifuge
18. Doctor's knife is a part of which equipment-
 - a. Tray dryer
 - b. Perforated basket centrifuge
 - c. Drum dryer
 - d. Ribbon blender
19. The efficiency of filtration increases, if
 - a. Filter cake is large
 - b. Filter aid is added to slurry
 - c. Use of funnel
 - d. Filter medium is used
20. In pharmaceutical packaging, collapsible tubes made from lead are not used as such, for one of the following reasons,
 - a. Costly metal
 - b. Difficulty in packing
 - c. Risk of poisoning
 - d. Soft in strength

PART-B: Descriptive

Time : 2 hrs. 30 min.

Marks : 35

[Answer any seven (7) questions]

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| 1. Write a short note on the hammer mill with a proper diagram. | 5 |
| 2. What is corrosion? Write about the various types of corrosion. | 1+4=5 |
| 3. Define Centrifugation, write its applications, and classify centrifuges. | 1+2+2
=5 |
| 4. What are the mechanisms of heat transfer? Explain in detail. | 5 |
| 5. What are the factors influencing filtration? Elaborate them. | 5 |
| 6. Write a short note on Cyclone separator mentioning its principle, construction & working. | 5 |
| 7. Write in detail about the theories of filtration. | 5 |
| 8. Explain with equations about the laws governing size reduction. | 5 |
| 9. Write in details about the mechanism of Solid mixing and liquid mixing. | 2.5+2.5
=5 |

PART-C : Long type questions

[Answer any two (2) questions]

1. What is EMC? Define Sorption and desorption. Draw the FMC curve and explain the important terms. 1+2+7
=10
2. Explain Bernoulli's theorem. Derive the Bernoulli's equation and write its application. 2+5+3
=10
3. Elaborate the mechanisms of size separation and write a short note on sieve shaker machine with a labelled diagram. 5+5=10

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