

Time : 3 Hrs.

Marks:75

Question – I

1x20

- 1 Magnesia Magma exhibits
 - a Antithixotropy
 - b Thixotropy
 - c show spur in the rheogram
 - d Rheopexy

- 2 Reciprocal of viscosity is known as:
 - a fluidity
 - b mobility
 - c reduced viscosity
 - d resistance

- 3 A plot of shear rate, as a function of shear stress is called
 - a Rheogram
 - b Standard Plot
 - c Humidity Chart
 - d Histogram

- 4 Progressive, permanent deformation under constant load is called
 - a Creep
 - b Plastic deformation
 - c Elastic deformation
 - d Fragmentation

- 5 During elastic deformation, the stress–strain relationship for a specimen is described by
 - a Hooke’s law
 - b Boyle’s law
 - c Beer Lambert’s law
 - d Charle’s law

- 6 The extent of sedimentation is quantitatively expressed by _____.
 - a Degree of deflocculation
 - b Sedimentation volume
 - c Sedimentation rate
 - d Sedimentation mass

- 7 Dispersed particles in the colloidal dispersions usually have the particle size ranging from
 - a 1nm to 1 μm
 - b 2 μm to 4 μm
 - c 5 μm to 6 μm
 - d 6 μm to 7 μm

- 8is concentration of globules at the top or bottom of the emulsion
- a Coalescence
 - b Creaming
 - c Breaking
 - d Phase inversion
- 9 Which of the following statement is correct
- a Lyophilic colloids are usually moderately thermodynamically unstable
 - b Lyophilic colloids are usually thermodynamically stable
 - C Lyophilic colloids are usually slightly thermodynamically unstable
 - d Lyophilic colloids are usually highly thermodynamically unstable
- 10 Which of the following is a correct sentence about emulsions
- a All emulsions are heterogeneous systems
 - b Some emulsions are homogeneous systems
 - c All emulsions are homogeneous systems
 - d Some emulsions are heterogeneous systems
- 11 Emulsions can be stabilized by
- a electrostatic repulsion between the droplets
 - b electrostatic attraction between the droplets
 - C aggregation of droplets
 - d precipitation of droplets
- 12 Which of the following is a correct sentence
- a Creaming is an irreversible process
 - b Creaming is a reversible process
 - C Breaking is a reversible process
 - d The cream floccules cannot be easily redispersed.
- 13 During the Brownian motion
- a the velocity of the particles increases with the decrease in particle size
 - b the velocity of the particles decreases with the decrease in particle size
 - c the velocity of the particles increases with the increase in particle size
 - d the velocity of the particles is not affected by the increase in particle size
14. Hausner ratio is
- a. Tapped density / Bulk density
 - b. Bulk density / Tapped density
 - c. Bulk volume / Tapped volume
 - d. Tapped volume / Bulk volume

15. Porosity is expressed in

- a. Percentage
- b. Millimeter
- c. Gram/Millimeter
- d. Newton

16. The criterion to call a system 'colloid' is

- a. a fine state of subdivision of dispersed phase
- b. dispersed particles are in the size range of 1 nm to 1 μ m
- c. interface is very extensive
- d. the presence of dispersed phase in a dispersion medium

17. Which of the following is the half life of Second order reaction

- a. $t_{1/2} = 1/ak$
- b. $t_{1/2} = 0.693/k$
- c. $t_{1/2} = A_0/2k$
- d. $t_{1/2} = A_0/2k$

18. According to ICH guidelines, climate zone IV is

- a. Hot/humid climate
- b. Hot/dry climate
- c. Subtropical and Mediterranean climate
- d. Moderate climate

19. The effect of temperature on rate of reaction is explained by

- a. Arrhenius equation
- b. Nernst equation
- c. Noyes whitney equation
- d. Fick's law

20. The time required for the complete degradation of a drug in solution is a finite value. The order of that reaction is:

- A.first
- B.pseudo first
- C.second
- D.zero

Q.II Long Answer Questions (Answer any two)

2x10

1. Discuss creaming & coalescence. Describe the factors for improving physical stability of emulsions (10M)
2. (A) Write a note on Normal distribution curve of powders.
(B) Enlist the methods used for determining particle size? Explain in detail any two.
3. (A). Discuss any two chemical degradation pathways
(B). The half life of drug which decomposes according first order kinetics is 95 days. Calculate shelf life and k.

Q.III Short Answer Questions (Answer any seven)

7x5

1. Describe the optical properties of colloids.
 2. Differentiate between flocculated and deflocculated suspensions.
 3. Write a short note on sedimentation volume observed in suspensions.
 4. What is a protective colloid and give the significance of gold number.
 5. Describe principle, construction (labelled diagram) and working of Ostwald's viscometer.
 6. Describe the mechanical behaviour of solids in terms of stress- strain relationship.
 7. What are the limitations of accelerated stability studies?
 8. What is micromeritics. Discuss its importance in pharmacy.
 9. Explain using formula, three ways of measuring flow properties
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