

Question Paper

Exam Date & Time: 08-Jul-2023 (02:00 PM - 05:00 PM)



MANIPAL ACADEMY OF HIGHER EDUCATION

Physical Pharmaceutics - II [PCE-BP403T-S1]

Marks: 75

Duration: 180 mins.

I Multiple Choice Questions (MCQs)

Answer all the questions.

Section Duration: 30 mins

- 1) The criterion to call a system "Colloid" is (1)
- [A fine state of subdivision of dispersed phase](#)
 - [Dispersed particles are in the size range of 1nm to 1 \$\mu\$ m](#)
 - [Interface is very extensive](#)
 - [The presence of dispersed phase in a dispersion medium](#)
- 2) Addition of alcohol to a hydrophilic colloid lead to: (1)
- [Crystallization](#)
 - [Hydration](#)
 - [Precipitation](#)
 - [Stabilization](#)
- 3) Which one of the following colloids is difficult to prepare? (1)
- [Association](#)
 - [Hydrophilic](#)
 - [Hydrophobic](#)
 - [Lyophilic](#)
- 4) Which of the following properties of a particle significantly affects the physical, chemical and biological properties of the drug? (1)
- [Density](#)
 - [Sedimentation](#)
 - [Size](#)
 - [Surface area](#)
- 5) Stokes law cannot be used, if the Reynolds number is more than (1)
- [0.2](#)
 - [1.8](#)
 - [9.0](#)
 - [18.0](#)
- 6) The term 'Light' as applied to pharmaceutical powders means (1)
- [Low bulk density](#)
 - [Low granule density](#)
 - [Low true density](#)

- [Slightly coloured](#)
- 7) Which one of the following dosage forms exhibit faster rate of reaction under normal conditions? (1)
- [Emulsions](#)
[Ointments](#)
[Solutions](#)
[Suspensions](#)
- 8) Usually, the rate of a chemical reaction may be enhanced by (1)
- [Cooling the reaction mixture](#)
[Increasing the rate of stirring](#)
[Raising the temperature of the reaction mixture](#)
[Using stoichiometric quantities of each reactant](#)
- 9) Which of the following expression is correct for the determination of shelf life for a first order decomposition (1)
- [t_{1/2} = 0.105/k](#)
[t₉₀ = 0.693/k](#)
[t_{1/2} = 0.693/k](#)
[t₉₀ = 0.105/k](#)
- 10) The critical value of zeta potential (in milli volts) for a stable colloid (except gold sol) is: (1)
- [From 20 to 50](#)
[From 50 to 100](#)
[Less than 20](#)
[More than 100](#)
- 11) The angle of repose values are utilized to (1)
- [Measure the movement of granules from hopper to the table of tableting/capsule machine](#)
[Select proper containers for capsules of a given mass of powders](#)
[Study the absorption of drug](#)
[Understand dissolution of medicament](#)
- 12) Porosity of a porous powder is defined as (1)
- [Bulk Volume/Void Volume](#)
[Void Volume/Bulk Volume](#)
[Void Volume/ True Volume](#)
[True Volume/Bulk Volume](#)
- 13) When coulter- counter apparatus is employed for powder analysis, the following criterion is important (1)
- [Dispersion medium should be coloured](#)
[Dispersion medium should be conducting](#)
[Suspended particles should be charged](#)
[Suspended particles should be spherical](#)
- 14) Plug flow is NOT observed in cone and plate viscometer. The reason is (1)

[Cleaning and filling of sample is easy](#)
[Rate of shear is independent of the radius](#)
[Shear can be maintained uniformly](#)
[Temperature can be maintained uniformly](#)

15) The falling sphere viscometer can be used over a range of (1)

[0.5 to 200000 poise](#)
[1 to 2 poise](#)
[200 to 2000 poise](#)
[20 to 200 poise](#)

16) Flocculated suspensions exhibit the flow of a type (1)

[Dilatant](#)
[Newtonian](#)
[Plastic](#)
[Pseudoplastic](#)

17) A wetting agent is included in the formulation of a suspension, particularly when the suspended particles: (1)

[Are hydrophobic](#)
[Are more denser than the vehicle](#)
[Are water soluble](#)
[Have lesser interfacial tension](#)

18) For a flocculated suspension, one of the following criteria is satisfied or established. (1)

[High inter - particle repulsions](#)
[Strong inter - particle attractions](#)
[Weak inter - particle attractions](#)
[Weak inter - particle repulsions](#)

19) For a stable emulsion, the phase volume ratio is generally about (1)

[26/74](#)
[52/48](#)
[74/26](#)
[74/100](#)

20) Which one of these methods is the MOST effective in preventing the rate of hydrolysis? (1)

[Buffer](#)
[Complexation](#)
[Removal of water](#)
[Suppression of solubility](#)

II Long Answers

Answer all the questions.

- 1) What are various methods to determine particle size? Explain any one in detail. (10)
- 2) What is meant by controlled flocculation? Discuss the various means by which controlled flocculation can be achieved. (10)

III Short Answers

Answer all the questions.

- 1) Classify and discuss the characteristics of different colloids. (5)
- 2) Explain the principle of cup and bob viscometer with a labelled diagram (5)
- 3) Define Thixotropy. Explain its principle with suitable examples. (5)
- 4) Explain the causes for the instability of emulsion. (5)
- 5) Explain zero-order and first-order rate reactions with suitable examples. (5)
- 6) Define Micromeritics. Explain various applications of Micromeritics. (5)
- 7) Explain the effect of hydrolysis on the stability of drugs with their preventive methods. (5)

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