Question Paper

Exam Date & Time: 22-May-2024 (10:00 AM - 01:00 PM)

MANIPAL ACADEMY OF HIGHER EDUCATION

Manipal College of Pharmaceutical Sciences
IV Semester B.Pharm -MAY 2024

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)   What are the ideal porosities for most of the pharmaceutical powders?   (1)

        26%
        26-48%
        30-50%
        1-48%

2)   Increasing the particle size of particles improves the flow properties of powder due to   (1)

        Reduction in the cohesive forces
        Reduction in the adhesive forces
        Increasing in the friction between the particles
        Decreased angle of response between the particles

3)   Fisher Subsieve sizer is used to determine the surface areas of the powders. The surface area is   (1)
        measured based on the change in

        The pressure difference across the compacted powder
        Light transmission of gas that reaches the detector
        Thermal conductivity of gas across the powder bed
        Weight of powder when air is passed through the powder bed

4)   The angle of repose for calcium stearate and dextrose are: (1)

        10 and 25º
        20 and 15º
        15 and 15º
        15 and 20º

5)   Dispersion of acacia in water gives the colloid type   (1)

        Association
        Negative
        Neutral
        Positive

6)   The protective action of a protective colloid is indicated by the prevention of a change of color of   (1)
        gold sol from _____ on the addition of 10% sodium chloride solution:

Violet to red
Red to violet
Red to green
Green to red

7)   In a dispersed system, the order of particle size is: (1)

Solutions < emulsions < suspensions
Solutions < colloids < suspensions
Colloids < emulsions < suspensions
Emulsions < colloids < suspensions

8)   Solutions of proteins and starch in water are examples of: (1)

Lyophilic colloids
Lyophobic colloids
Hydrophilic colloids
Hydrophobic colloids

9)   The storage directions on a parenteral solution specify 'store in a cool place'. This may be stored in: (1)

An air-conditioned area at 10ºC
A refrigerator at 15ºC
A place whose temperature is set at 5ºC
Room temperature, at 25ºC

10)   During storage, crystal growth is observed in a suspension due to: (1)

Absorption of water
Fluctuations in the ambient temperature
Presence of suspending agents
Volatilization of solids

11)   The units for the specific rate constant for a second-order reaction are: (1)

Litre/moles.sec
Litre. sec/moles
Moles/litre .sec
Moles. sec/litre

12)   A second-order reaction follows a pseudo-first-order reaction when the concentrations of: (1)

Two reactants are high
Two reactants are low
One reactant is far higher than the other reactant
Two reactants are equal

13)   In the liquid displacement method, the true density is obtained as the ratio of: (1)

The weight of the material and the weight of the liquid it displaces
The weight of the material and the volume of the liquid it displaces
The density of the material and the weight of the liquid it displaces
Weight of the material and density of the liquid it displaces

14)   The type of viscosity specified in I.P. (Ostwald viscometer) is   (1)

Absolute viscosity
Dynamic viscosity

Kinematics
viscosity

Viscosity coefficient

15) An emulsion of o/w type has the viscosity (1)

Greater than that of the internal phase

Greater than that of the vehicle

Less than that of the internal phase

Less than that of the vehicle

16) The unit of viscosity is (1)

Newton sec m^{-2}

Newton sec ^{2} m ^{2}

Newton sec^{-1} m $^{-1}$

Newton

17) The ratio of the ultimate volume of sediment to the actual volume of sediment before settling is called (1)

Sedimentation volume

Degree of flocculation

Emulsification volume

Phase volume ratio

18) The size of dispersed particles in coarse dispersion ranges from (1)

1 μm to 100 μm

1 nm to l00 nm

1mm to 100 cm

Less than 1 μm

19) The rheological property of emulsion can be controlled by (1)

Nature and concentration of emulsifying system

Particle size of the dispersed phase

Viscosity of continuous phase

All of these

20) In general, reaction rate constants in neutral pH are comparatively (1)

Equal

Higher

Lower

Zero

II Long Answers

Answer all the questions.

1) Explain why surfactants form micelles below the Kraft point.Define the term critical micelle concentration (CMC) and explain the phenomenon of micelle formation. (10)

2) Define Emulsion. explain the instability aspects of emulsion with its preventive measures. (10)

III Short Answers

Answer all the questions.

1) Explain why the log-normal distribution curve is a better representation of size distribution data than the normal distribution curve in pharmaceutical powders.Estimate the specific surfaces, Sw and Sv (5)

of palmitate sucrose assuming that the particles have a sphere (dvs) of 4.0 μm. The true density is 1.455 g/cc.

2)	Explain the types and factors that influence the deformation of solids.	(5)
3)	Explain the concept of thixotropy with examples.	(5)
4)	Discuss the importance of the determination of sedimentation volume.	(5)
5)	Discuss the various parameters that influence the rate of chemical reactions.	(5)
6)	Define Stokes law.Reynolds number should be combined with Stoke's law to assess the particle's size distribution accurately by Andreasen apparatus. Why?	(5)
7)	What is meant by the order of reaction with examples? Define molecularity. Give an example. Why does the same reaction follow different molecularity and order?	(5)

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