Paper / Subject Code: 69113 / Physical Pharmaceutics-II

Time: 3 hours **Marks: 75**

Note: All questions are compulsory
Draw a suitable diagram wherever applicable
Use of scientific calculator is permitted

Q. I. Attempt all multiple-choice questions (MCQ) **20Marks**

1. Colloidal silver sols, polymers, paint, cheese are examples of

a. Molecular dispersion
b. Colloidal dispersion
c. Coarse dispersion
d. True dispersions

2. Association colloids are also known as. _____ colloids

a. Lyophilic
b. Lyophobic
c. Amphiphilic
d. Hydrophilic

3. Lyophobic sols, in comparison to lyophilic sols

a. Show most intense tyndall effect
b. Least intense tyndall effect
c. Moderately intense tyndall effect
d. Does not show tyndall effect

4. Out of the following fluids, find out the odd one on the basis of their rheological behaviour:
a. Distilled water
b. 2% Sodium lauryl sulphate solution
c. Ethanol
d. Starch suspension

5. Flocculated suspension exhibit _____ type of flow
a. Dilatant
b. Newtonian
c. Plastic
d. Pseudoplastic

6. As the temperature of liquid increases, the viscosity _____
a. Decreases
b. Decreases with pressure
c. Does not affect
d. Increases

7. Viscoelastic measurements are based on
a. Mechanical properties of materials
b. Electrical properties of materials
c. Chemical properties of materials
d. Physical properties of materials

8. 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

9. In a well-dispersed suspension, the individual particles are _____
a. Aggregated
b. Dispersed uniformly
c. Settled at the bottom
d. Dissolved completely

10. _____ is the primary factor influencing the settling rate of particles in a suspension.
a. Particle size
b. Temperature
c. pH of the medium
d. Particle density

11. _____ is commonly used as a gelling agent in structured vehicles.
a. Silicones
b. Hydrocolloids
c. Alcohols
d. Esters

12. _____ is an example of hydrophilic colloid used in preparation of an emulsion.
a. Acacia
b. Spans
c. Bentonite
d. Charcoal

13. _____ is most likely to exhibit non-Newtonian fluid behavior.
a. Olive oil
b. Distilled water
c. Honey
d. Isopropyl alcohol

14. _____ method is used to determine particle size by passing light through a sample.
a. X-ray diffraction
b. Sieve analysis
c. Laser diffraction
d. Gas chromatography

15. Porosity refers to:
a. The density of particles
b. The arrangement of particles
c. The presence of void spaces between particles
d. The flow properties of particles

16.How is specific surface area typically measured?
a. By weighing particles
b. By observing particle shape
c. By gas adsorption techniques
d. By counting particles

17.If the plot of ……yields a straight line ,the reaction is second order reaction.
a. log(a-x)versus t
b. x/(a(a-x)) versus t
c. a-x versus t
d. x/(a-x) versus t

18.The half life of second order reaction is calculated by using the one of following formula
a. 0.693/k
b. 1/ak
c. 1/2ak
d. 0.1052/k

19.————————is one of the essential reasons to conduct the drug stability testing of any Pharmaceutical product.
a. Patient safety
b. Drug response
c. Financial Profit/loss to the Manufacturer
d. Drug efficacy

20.As per the ICH guidelines————————— ,the recommended conditions for long term stability studies in general case for climatic zones I and II is 25 °C ± 2 °C/60% RH ± 5% RH or at 30 °C ± 2 °C/65% RH ± 5% RH.
a. Q1A(R2)
b. Q2(R2)
c. QE(R1)
d. Q1F(R2)

Q II. Attempt any two question **(10marks each)**

1.A.Discuss the various factors influencing particle settling in suspension using Stoke's law (5)
1.B. Give in brief mechanisms of action of emulsifying agents (5)

2.A. What do you understand by particles packaging arrangements in powders? (5)
2.B. Explain powder porosity including its applications. (5)

3.A.Give the objective of accelerated stability studies and discuss any one method to determine the shelf life of drug . (5)
3.B. Drug solution contained 850units per ml when prepared. It was analysed after a period of 80days and was found to obtain 350units per ml. Assuming the decomposition is first order, find out the reaction rate constant and the time the drug will take to decompose to one half of original concentration. (5)

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Q III. Attempt any seven questions **(5 marks each)**

1. Enlist dispersion methods of preparing lyophobic colloids and describe any two methods in detail
2. What are the methods used for determining particle size? Explain any one.
3. What is first order kinetics. Derive an equation for first order kinetics
4. Discuss various ways to precipitate colloids.
5. Discuss the factors influencing bulkiness and flow properties of pharmaceutical powders.
6. Enlist different types of viscometer and describe Ostwald viscometer.
7. Discuss the various physical instabilities in emulsion.
8. Describe elastic and plastic deformation of solids.
9. Write a note on sedimentation volume and discuss its importance in pharmaceutical formulation development.
