

CHAROTAR UNIVERSITY OF SCIENCE & TECHNOLOGY
4th Semester of B. Pharm. Examination
University Theory Examination May 2017
PH 225 Physical Pharmaceutics

Date: 12/05/2017, Friday Time: 01: 30 p.m. to 04:30 p.m.

Maximum Marks: 80

Instructions:

1. There are three sections in this question paper.
2. SECTION – I comprises of Question 1. Total marks for Section 1 are 20. There are 20 sub-questions (MCQ type). Answers to SECTION – I are to be given in Answer Sheet for MCQ type questions provided to you. Maximum time allotted for SECTION – I is 30 minutes. Answers to SECTION – I must be written during the first 30 minutes of the examination.
3. Answers to SECTION – II and SECTION – III are to be provided in separate Main Answer Books provided to you.
4. Figures to right indicate marks.
5. Draw neat labeled sketches wherever necessary.

SECTION - I

- Q 1 Attempt all questions. Each question is of one mark. 20**
1. Shear thinning materials follow _____ flow
[A] Newtonian
[B] Plastic
[C] Pseudoplastic
[D] Dilatant
 2. Chloroform is a _____ solvent
[A] Polar
[B] Non polar
[C] Semi polar
[D] Aprotic
 3. Which one of the following properties is not applicable to suspension?
[A] Settling of Particles
[B] Brownian movement
[C] Ostwald ripening
[D] Creaming
 4. Particles form hard aggregates known as
[A] Flocculated
[B] Deflocculated
[C] Dilute suspension
[D] Coarse Suspension
 5. On commercial scale, emulsion are prepared by
[A] Centrifugation
[B] Dialysis
[C] Freezing
[D] Homogenization

6. Which of following is instability problem of Emulsion?
[A] Breaking
[B] Caking
[C] Coalescence
[D] All of the above
7. HLB value of w/o emulsifying agents is _____
[A] 1-3
[B] 3-8
[C] 8-16
[D] 16-40
8. In frequency curve if curve is elongated towards higher size range, the pattern is called
[A] Normal
[B] Negative Skewness
[C] Positive Skewness
[D] None of the above
9. Sedimentation of particles is evaluated by
[A] Andresen pipette method
[B] XRD
[C] FTIR
[D] DSC
10. The value 10 of Carr's index refers _____ flow
[A] Good
[B] Excellent
[C] Fair
[D] Poor
11. Which of following viscometer is used for Newtonian system?
[A] Ostwald
[B] Cup and bob
[C] Cone and Plate
[D] All of the above
12. _____ are capable of reducing the interfacial tension.
[A] Surface active agents
[B] Surfactants
[C] Emulsifiers
[D] All of the above
13. Following is the example/s of chelating agent
[A] EDTA
[B] Citric acid
[C] Chlorophyll
[D] All of the above
14. Which of the following is the type of inclusion complex/s
[A] Clathrates
[B] Cyclodextrin complexation
[C] Channel type complex
[D] All of the above

15. When RBC put in the solution of 5 % W/V sodium chloride it will
- [A] Swell
 - [B] Shrink
 - [C] Un affected
 - [D] None of the above
16. Which bond form when ethanol dissolves in water?
- [A] Hydrogen bonds
 - [B] Vander Vaal's
 - [C] Dipole-dipole
 - [D] All of the above
17. DuNouy ring method is used for determination of
- [A] Surface area
 - [B] Surface Tension
 - [C] Particle Size
 - [D] Viscosity
18. In _____, the particles are packed in a regularly ordered, repeating pattern.
- [A] Crystalline solids
 - [B] Amorphous solids
 - [C] Both of the above
 - [D] Amorphous crystal
19. Solids can change directly into gases through the process known as
- [A] Sublimation
 - [B] Eutectic mixtures
 - [C] Liquid crystal
 - [D] Liquid complex
20. X Ray Diffraction (XRD) technique is used for determination of
- [A] Crystalline structure
 - [B] Polymorphs
 - [C] Crystal lattice
 - [D] All of th above

SECTION -II

- Q 2** Attempt any **TWO** of the following.
- A** Classify the methods for measurement of surface and interfacial tensions. Describe in any one in detail. 05
- B (1)** Draw the flow curves for Newtonian and non Newtonian types of flow. Give one example for each type of flow. 03
- (2)** Differentiate between Newtonian and non Newtonian systems. 02
- C** Classify various viscometers. Describe viscometer with diagram to find out viscosity of Non-Newtonian fluids. 05

- Q 3** Attempt any TWO of the following.
The sample of Lactose is analyzed by means of optical microscopy, and the following data are collected:
- | | | | | | | |
|---|----------------------------|----|----|----|----|----|
| A | Diameter (μm) | 10 | 15 | 20 | 25 | 05 |
| | Frequency (n) | 73 | 77 | 82 | 37 | |
- Compute the d_{in} (length number diameter) and d_{vs} (volume surface diameter).
- B Classify the techniques for determination of particle size. Describe the techniques use for determination of granules size. 05
- C The viscosity of water at 25 degree celcius is 0.8904 cps. The viscosity of a 2% w/v solution of polymer (MW=26000) is 100 cps. Calculate the relative viscosity, specific viscosity and reduced viscosity. 05

SECTION – III

- Q 4** Attempt any FOUR of the following.
- A Differentiate between flocculated and deflocculated Suspension. Describe the role of Zeta potential and particle size in the formulation of suspension. 05
- B Enlist the physical instability marker of an emulsion and describe any two of them. 05
- C Write a note on Isotonic solutions with respect to measurement and methods of adjusting tonicity. 05
- D Classify Colloids. Give applications of colloids in pharmacy. 05
- E Describe properties of colloids. 05
- F Define the terms sublimation, eutectic mixtures, liquid complexes, liquid crystals and glassy state. 05
- Q 5** Attempt any FOUR of the following.
- A Briefly explain settling in suspensions and Brownian movement of suspension. 05
- B Explain Phase equillibria for system containing any two phases. 05
- C Describe briefly the methods of expressing Solubility. 05
- D Describe the terms polymorphs with suitable example. How it is characterized? Explain. 05
- E Classify the pharmaceutical complexes. Give applications of complex formulation in pharmacy. 05
- F What is buffer capacity? How it is calculated. 05