PARUL UNIVERSITY
FACULTY OF PHARMACY
B. Pharm Winter 2018-19 Examination

Semester: 3   Date: 29/11/2018
Subject Code: BP302T   Time: 2:00 pm to 5:00 pm
Subject Name: Physical Pharmaceutics I   Total Marks: 75

Instructions:
1. Figures to the right indicate maximum marks.
2. Make suitable assumptions wherever necessary.

Q.1 Multiple Choice Questions (MCQs) (1 Mark Each)   **(20)**

1. Calculate the molarity of a solution that contains 1.8 moles of H_2SO_4 in 3.0 L of solution.
   - a) 0.600
   - b) 0.568
   - c) 0.890
   - d) 0.231

2. Which of following is not a system of measure of solubility?
   - a) Mass per volume
   - b) Molarity
   - c) Milliequivalent
   - d) Enthalpy

3. Amongst mentioned below, for which combinations solubility decrease with increase in temperature
   - a) Phenol-Water
   - b) Triethylamine-Water
   - c) Nicotine-Water
   - d) All of the above

4. The Process in which molecules go directly from the solid into the vapor phase is known as
   - a) Vaporization
   - b) Sublimation
   - c) Deposition
   - d) Liquefaction

5. Ability of a drug substances to exist in more than one crystalline phases is known as
   - a) Polymorphism
   - b) Polycrystallinity
   - c) Fusion
   - d) Crystallinity

6. The higher the surface tension of liquid, the ------------- is the cohesive force of liquid
   - a) Stronger
   - b) Weaker
   - c) Double
   - d) Less

7. HLB scale was introduced By
   - a) Griffin
   - b) Brunauer
   - c) Emmett
   - d) Teller

8. The unit of surface tension is
   - a) N/m^2
   - b) Kg.cm
   - c) Dynes/cm
   - d) $Dynes/cm^2$

9. Cetrimide is example of
   - a) Anionic surfactant
   - b) Non ionic surfactant
   - c) Cationic surfactant
   - d) Ampholytic surfactant

10. Surfactants with HLB value more than 16 indicates
    - a) Wetting agent
    - b) Detergents
    - c) Spreading agents
    - d) Solubilizing agents

11. Ligands with multiple binding sites are called
    - a) Unidentate
    - b) Bidentate
    - c) Polydentate
    - d) Hexadentate

12. Which of the following organic solvent is used to form complex of Iodine
    - a) Toluene
    - b) Aniline
    - c) Hexane
    - d) Cyclohexane

13. Jobb's method is also known as
    - a) pH titration
    - b) Method of Continuous variation
    - c) Partition coefficient
    - d) Solubility method

14. Maximum Buffer capacity equals to
    - a) 0.576 C
    - b) 2.303 C
    - c) 0.2303 C
    - d) 57.6 C

15. In which method tonicity is calculated by adding water to the drugs to make an isotonic solution.
    a) Sodium chloride equivalent method   b) Cryoscopic method
    c) White Vincent Method   d) Potentiometric method

16. Maximum buffer capacity occurs when
    a) pH=pKa   b) pH<pKa
    c) pH>pKa   d) None of above

17. The solution having osmotic pressure greater than that of 0.9%w/v sodium chloride is called
    a) Hypertonic solution   b) Isotonic solution
    c) Hypotonic solution   d) Isoosmotic solution

18. The mechanism of polar solvents mainly depends on
    a) High dielectric constant   b) Hydrogen bond formation
    c) Dipole interaction   d) All of the above

19. Interfacial tension are _____than the surface tension.
    a) less   b) more
    c) double   d) equal to

20. Which of the following also known as supercooled Liquids.
    a) Amorphous solids   b) Ionic solids
    c) Molecular solids   d) Crystalline solids

Q.2 Long Answers (any 2 out of 3) (10 Mark Each)   **(20)**
1. What is distribution law? Give the detail explanation of distribution law and deviation from distribution law with its applications and limitations.
2. Discuss in detail physicochemical properties of drug molecules along with its applications.
3. Define interfacial tension and Explain Surface free energy and spreading coefficient with equations.

Q.3 Short Answers (any 7 out of 9) (5 Mark Each)   **(35)**
1. Define Solubility and describe the factors influencing the solubility.
2. Explain Raoult's law and discuss Ideal and non Ideal solution in detail.
3. Define adhesive and cohesive forces. Explain binding intermolecular forces and liquid crystal state.
4. Define surface tension. Describe Du Nuoy Tensiometer in detail.
5. Give a note on Polymorphism.
6. Classify complexation and explain cyclodextrin.
7. Define Buffers. Explain Hendeson-Hasselbalch equation for buffers.
8. Enlist methods of adjusting tonicity and pH. Explain cryoscopic method in detail.
9. Write a short note on Protein binding.