

Seat No: \_\_\_\_\_

Enrollment No: \_\_\_\_\_

**PARUL UNIVERSITY**  
**FACULTY OF PHARMACY**  
**B. Pharm. Winter 2021 - 22 Examination**

Semester: 3

Subject Code: BP302T

Subject Name: Physical Pharmaceutics I

Date: 06/10/2021  
Time: 02:00 pm to 05:00 pm  
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. A gas law giving the relationship between volume and pressure is obtained from
  - a) Boyle's law
  - b) Charle's law
  - c) Dalton's law
  - d) Graham's law
2. In the aerosol system, propellant is available in one of the following forms at ambient conditions.
  - a) Gas
  - b) Gas and Liquid
  - c) Gas, Liquid and Solid
  - d) Liquid
3. Among the following which one is the non-toxic and non-flammable super critical fluid?
  - a) Ethane
  - b) Ethylene
  - c) Carbon dioxide
  - d) Nitrous oxide
4. Dielectric constant is a property applied for
  - a) Percent composition
  - b) Polarity scale
  - c) Qualitative analysis
  - d) Structural elucidation
5. Optical activity is an important structural requirement for estimating one of the properties.
  - a) Dielectric constant
  - b) Polarizability
  - c) Specific rotation
  - d) Refractive index
6. Pair of liquids that are miscible in all proportions are known as
  - a) Binary liquids
  - b) Concentrated liquids
  - c) Polar liquids
  - d) Saturated liquids
7. The tonicity of solutions can be determined by
  - a) Colorimetric method
  - b) Haemolytic method
  - c) Colligative method
  - d) Both b) and c)
8. The value of association constant,  $K_a$  and the number of binding sites  $N$  can be obtained by
  - a) Direct plot
  - b) Scatchard plot
  - c) Klotz plot
  - d) All of the above
9. Lecithin is example of
  - a) Anionic surfactants
  - b) Cationic surfactants
  - c) Non ionic surfactants
  - d) Ampholytic surfactants
10. Stalagmometer is used to determine
  - a) Surface tension
  - b) Particle size
  - c) Solubility
  - d) Viscosity
11. The solutions which obey the Raoult's law is known as
  - a) Ideal solution
  - b) Real solution
  - c) Binary solution
  - d) Supersaturated solution
12. When sucrose is added to water, the resulting form is
  - a) Emulsion
  - b) Ointment
  - c) Solution
  - d) Suspension
13. Isotonic solutions have same tonicity, in addition to one of the following.
  - a) Osmotic pressure
  - b) Temperature
  - c) Vapour pressure
  - d) Viscosity
14. Colorimetric method has one of the disadvantages.
  - a) Less expensive
  - b) Not accurate
  - c) Not suitable for non-aqueous titrations
  - d) Required sophisticated equipment
15. When water is the solvent of crystallization the crystals are termed as

- a) Solvates  
c) Anhydrates
16. The melting point at which the mixture of two components turns to liquid form called \_\_\_\_\_.
- a) Triple point  
c) Critical point
17. \_\_\_\_\_ is the example of high critical temperature gas.
- a) Oxygen  
c) Nitrogen
18. The ratio of the velocity of light in vacuum or air to that in medium is \_\_\_\_\_.
- a) Refractivity  
c) Dipole moment
19. \_\_\_\_\_ is the mixtures of compounds which resist the changes in the pH upon the addition of small amounts of alkali or acids in the solution.
- a) Isotonic Solutions  
c) Solutions
20. \_\_\_\_\_ is the most reliable method of analysis of complexes, when complexation is accompanied by the change in pH.
- a) Continuous variation method  
c) Distribution method
- b) Hydrates  
d) None of the above
- b) Eutectic point  
d) None of the above
- b) Helium  
d) Carbon Dioxide
- b) Optical activity  
d) Partition coefficient
- b) Buffers  
d) Both a) and b)
- b) pH titration method  
d) Solubility method

**Q.2 Long Answers (any 2 out of 3) (10 Mark Each)**

(20)

- Describe the method of determining solubility of solids in liquids.
- Explain spreading coefficient.
- Write a note on liquid crystals.

**Q.3 Short Answers (any 7 out of 9) (5 Mark Each)**

(35)

- Explain Sorensen's pH scale.
- Classify the complexes. Explain chelates.
- Draw figure of HLB scale. Write methods to determine it.
- Write applications of drug protein binding in drug activity.
- Write note on buffered isotonic solutions.
- Discuss pH titration method for complexation analysis.
- Explain Dalton's Law of Partial Pressure.
- What is dipole moment? How does it help in interpreting the structure of the molecules?
- Explain ideal gas equation with its applications.