PCI

II B. Pharmacy I Semester Regular/Supplementary Examinations, March - 2021
PHYSICAL PHARMACEUTICS-I

Time: 3 hours   Max. Marks: 75

Note: 1. Question Paper consists of three parts (**Part-I**, **Part-II & Part-III**)
       2. Answer ALL (Multiple Choice) Questions from **Part-I**
       3. Answer any **TWO** Questions from **Part-II**
       4. Answer any **SEVEN** Questions from **Part-III**
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PART –I

1.   (i)   Which of the following is TRUE for Azeotropic mixtures?   (1M)
         a. At a specific concentration they form clear solution
         b. At a specific concentration they form separate layers
         c. At a specific concentration they will distill together
         d. They can be separated by using fractional distillation method

  (ii)   Salicylic acid has a solubility of 2.48g/L in water at 25^oC. Hence the drug is considered as ……….. in water.   (1M)
       a. Very soluble   b. Soluble   c. Slightly soluble   d. Practically insoluble

  (iii)   1ppm =…………   (1M)
       a. 0.1 mg/mL   b. 0.01 mg/mL   c. 0.001 mg/mL   d. 0.0001 mg/mL

  (iv)   Increase in pressure significantly increases solubility of the following.   (1M)
         a. NaCl in water
         b. CO_2 in water
         c. HCl in water
         d. Glucose in water

  (v)   Conversion of a compound from solid to vapour state is called……   (1M)
       a. Melting   b. Sublimation   c. Freezing   d. Crystallization

  (vi)   ………….. bonding is present among water molecules   (1M)
         a. Ionic bond
         b. hydrogen bond
         c. ion-dipole interaction
         d. dipole-dipole interaction

  (vii)   Which of the following shows lowest vapor pressure at 25^oC?   (1M)
         a. Bromine   b. ethanol   c. water   d. diethyl ether

  (viii)   ………. says "Pressure of a gas is directly proportional to temperature"   (1M)
         a. Boyle's law
         b. Charles law
         c. Hay-Lussac's law
         d. Avagadro law

  (ix)   Polymorphism means a compound showing …………..   (1M)
         a. Multiple colours
         b. Two or more boiling points
         c. Different crystalline states
         d. Two or more physical states

  (x)   Among the halide ions ………. has maximum ionic diameter   (1M)
         a. Fluoride   b. Chloride   c. Bromide   d. Iodide

(xi)   Which of the following is not true for protein binding?   (1M)
   a. Protein and drug are bound by noncovalent interactions
   b. It acts as drug reserve
   c. It does not affect the chemistry of drug
   d. It leads to protein denaturation

(xii)   The solution of sodium chloride will be …….pH   (1M)
   a. Acidic   b. Basic   c. Neutral   d. Acidic solution slowly turns to basic

(xiii)   Oxalic acid is a …………ligand   (1M)
   a. Bidentate   b. Tridentate   c. Tetradentate   d. Hexadentate

(xiv)   The coordination number of cobalt in $(Co (NH_3)_6)^{3+}$ is …………..   (1M)
   a. 3   b. 4   c. 6   d. 12

(xv)   Digoxin is bound to albumin at ………….   (1M)
   a. Site I   b. Site II   c. Site III   d. Site IV

(xvi)   Isobaric means, same…..   (1M)
   a. Pressure   b. Temperature   c. Osmotic pressure   d. pH

(xvii)   When a cell is kept in hypotonic solution, then it will ………..   (1M)
   a. swell   b. shrink   c. no change   d. change color

(xviii)   …………… solution of NaCl in water is isotonic with human blood.   (1M)
   a. 0.9%wt   b. 0.9 mol   c. 0.9mg/L   d. 0.9g/L

(xix)   Human plasma contains …………. as buffer   (1M)
   a. Phosphoric acid   b. Carbonic acid
   c. Acetic acid   d. None of the above

(xx)   Which of the following cannot be easily separated by simple distillation   (1M)
   process?
   a. Ethanol and water   b. Benzene and water
   c. Hexane and diethyl ether   d. Sodium chloride and water

PART –II

2.   a)   Discuss the procedure used for determination of solubility of a drug.   (5M)

    b)   Write short notes on solubility curves.   (5M)

3.   a)   What is triple point? Write its significance in pharmacy.   (5M)

    b)   With a neat sketch write on working of Abbe's refractometer.   (5M)

4.   a)   What is a buffer? Write buffer equation for salt of weak acid.   (5M)

    b)   Explain the theory of complexation. Write its applications.   (5M)

PART -III

5.   List and explain the factors influencing solubility of a solid in liquid.   (5M)

6.   Write the nature and significance of liquid crystals.   (5M)

7.   State a brief note on pH meter.   (5M)

8.   Discuss the significance of buffers in biological system.   (5M)

9.   Describe HLB scale.   (5M)

10.   Write in brief on determination of surface tension by capillary raise method.   (5M)

11.   What is spreading coefficient? Write its importance.   (5M)

12.   Write short note on aerosols.   (5M)

13.   Explain Newtonian fluids with examples.   (5M)