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2021

**B.Pharm. 3<sup>rd</sup> Semester End-Term Examination**

Pharmacy

**PHYSICAL PHARMACEUTICS - I (THEORY)**

(New Regulation)

Full Marks - 75

Time - Three hours

The figures in the margin indicate full marks  
for the questions.

1. Multiple choice questions (MCQ) (Answer all questions) (20 × 1 = 20)
- (i) Unit of molality is
- (a) mol/gm (b) mol/kg  
(c) mol/ml (d) None
- (ii) Rectification is also known as
- (a) Simple distillation  
(b) Filtration  
(c) Fractional distillation  
(d) Vaccum distillation
- (iii) At zero pH, the hydrogen ion concentration is
- (a) 0 (b) 1  
(c) 14 (d) None of above
- (iv) Substance with no definite shape is
- (a) Crystalline  
(b) Polymorphs  
(c) Amorphous  
(d) All of the above

[Turn over



- (v) Partition of solute between immiscible liquids is known as
- Partition coefficient
  - Emulsion
  - Distribution law
  - Solubility law
- (vi) Buffer capacity can be measured by equation of
- Van Slykes'
  - Henderson
  - Ostwald dilution
  - Van't Hoff
- (vii) Surfactants begins to form micelles at
- Cloud point
  - Krafft point
  - Critical point
  - Critical micellar concentration
- (viii) Latent heat of fusion means changing of phase from
- Solid to Liquid
  - Liquid to Gas
  - Gas to liquid
  - Liquid to solid
- (ix) One debye unit is equal to
- $3.330 \times 10^{-30}$
  - $3.332 \times 10^{-30}$
  - $3.336 \times 10^{-30}$
  - $3.338 \times 10^{-30}$
- (x) In dipolar molecule, positive and negative charges are separated due to
- Even distribution of electrons
  - Un-even distribution of electrons
  - Equal distribution of electrons
  - No charge of electrons
- (xi) As the temperature \_\_\_\_\_, surface tension of liquid \_\_\_\_\_.
- Increase, increase
  - Increase, decrease
  - No relation
  - Both (a) and (b)



- (xii) Surface tension of water is
- (a) 62 dynes/cm
  - (b) 72 dynes/cm
  - (c) 82 dynes/cm
  - (d) 92 dynes/cm
- (xiii) Protein binding ————— distribution of drugs.
- (a) Increase
  - (b) Decrease
  - (c) Does not affect
  - (d) Prevent
- (xiv) Surface active agents are having
- (a) Only polar group
  - (b) Only non polar group
  - (c) Both (a) and (b)
  - (d) None
- (xv) Plane polarized light when rotates clock wise, it is known as
- (a) Laevorotatory
  - (b) Dextrorotatory
  - (c) Refracted
  - (d) None of the above
- (xvi) Amount of acid/base required to unit change of pH in a solution is called
- (a) Buffer action
  - (b) Buffer capacity
  - (c) Buffer system
  - (d) None of above
- (xvii) Surfactants works by
- (a) increasing the interfacial tension
  - (b) increasing the contact angle
  - (c) increasing the desorption
  - (d) none
- (xviii) When structure of any molecule is linear the dipole moment is
- (a)  $<1$
  - (b)  $>1$
  - (c) Zero
  - (d)  $>2$



(xix) When substance is denser than air, the refractive index is

- (a)  $>1$
- (b)  $<1$
- (c)  $=<1$
- (d) No effect

(xx) HLB value of zero indicates

- (a) Solubilizing agent
- (b) Wetting agent
- (c) Emulsifying agent
- (d) Anti-foaming agent

2. Long answers (Answer 2 out of 3) (2 × 10 = 20)

- (a) Define the complexation of drugs. Classify the complexes formed.
- (b) Define the term pH. Describe the various ways to measure the pH.
- (c) Enlist the factors affecting solubility of solids in liquids. Explain the critical solution temperature and its application.

3. Short answers (Answer 7 out of 9) (7 × 5 = 35)

- (a) What are the applications of protein binding? Explain the kinetics of protein binding.
- (b) Write notes on :
  - (i) Optical rotation
  - (ii) Eutectic mixture
- (c) What are states of matter? Write a brief note on liquid crystals and glassy state.
- (d) Define refractive index and describe abbe's refractometer.
- (e) Write application for buffers and explain the buffer action mechanism.
- (f) What do you mean by Nernst's distribution law? Explain its limitations with application.
- (g) Explain about the different methods involved in measurement of surface tension.
- (h) Write the application of Raoult's law. Describe the positive and negative deviation of Raoult's law.
- (i) Describe the Langmuir adsorption isotherm with the assumptions based upon it.