

Sum - 2029  
11/5/23

Seat Number 

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**PANKH-52**

**BP-302-T**

**Physical Pharmaceutics-I**

**(723302)**

**Total Pages : 5]**

**Time : 3 Hours**

**Max Marks : 75**

- Note :** (1) Do not write anything on question paper except Seat No.  
(2) All questions are compulsory.  
(3) Figures to the right indicate full marks.  
(4) Draw well labelled diagram wherever necessary.  
(5) Graph or diagram should be drawn with black ink pen being used for writing paper or black HB pencil.

1. (A) Choose the *correct* answer of the following : 1×10=10
- (i) If two solutions have same osmotic pressure, they are known as .....
- (a) Isobaric (b) Isotonic  
(c) Hypertonic (d) Hypotonic
- (ii) One of the following form of solid shows higher solubility than others :
- (a) Stable (b) Unstable  
(c) Metastable (d) All of these

P.T.O.

(iii) Liquefaction of gases can be achieved :

- (a) At high temperature
- (b) At low pressure
- (c) At constant temperature
- (d) At low temperature and high pressure

(iv) The pH of pharmaceutical buffers can be calculated using :

- (a) Michaelis-Menten equation
- (b) pH partition theory
- (c) Noyes Whitney equation
- (d) Henderson-Hasselbalch equation

(v) Unit of surface tension is .....

- (a)  $\text{N/m}^2$
- (b)  $\text{kg/cm}$
- (c)  $\text{dyne/cm}$
- (d)  $\text{dyne/cm}^2$

(vi) Which of the following is unidentatated ?

- (a) Ammonia
- (b) Oxalate ion
- (c) EDTA
- (d) Ethylene diamine

(vii) In terms of pH, H indicates :

- (a) Haemoglobin
- (b) Helium
- (c) Hydrogen
- (d) Half

(viii) Solubility of substance depends upon :

- (a) Solvent used
- (b) Temperature
- (c) Pressure
- (d) All of the above

(ix) Diffusion is measured by :

- (a) Franz cell
- (b) Voltameter
- (c) Rotating basket apparatus
- (d) Viscometer

(x) The unit of diffusion coefficient is :

- (a)  $\text{cm}^2/\text{s} \times \text{s}^1/\text{cm}^2\text{s}^1$
- (b)  $\text{cm}^2\text{s}^{-1}$
- (c)  $\text{cm}^2\text{s}^{-2}$
- (d)  $\text{cm}^2\text{s}^2$

2×5=10

(B) Answer the following questions :

- (1) Define Kraft point.
- (2) Define buffer capacity.
- (3) State dipole moments and its significance.
- (4) Define eutectic point and give *one* example of eutectic mixture.
- (5) Define the term sublimation and boiling point.

2×10=20

2. Solve any *two* :

- (1) What is interfacial phenomenon ? Write different methods to determine surface tension and details. Explain any *one* method in detail.
- (2) Define polymorphism. Classify polymorphs and write pharmaceutical applications of polymorphism.
- (3) Describe solubility of partial miscible liquids in binary systems with suitable examples.

3. Solve any *seven* :

7×5=35

- (1) Write a short note on glossy states.
- (2) Explain various factors affecting solubility of gases in liquids.
- (3) State and explain paradoxical solution.
- (4) Define Sublimation. Explain principle of sublimation in detail.

- (5) What is BET equation ? Write different types of isotherm.
- (6) What is HLB ? Explain various methods to determine HLB of surfactant.
- (7) Explain spreading coefficient and its significance.
- (8) What are complexes ? Classify only complexation.
- (9) Define propellant. Classify them with examples.
- (10) Describe diffusion principles in biological systems.