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Term End Examination 2023-2024

Programme – B.Pharm-2020/B.Pharm-2021/B.Pharm-2022

Course Name – Physical Pharmaceutics I

Course Code - BP302T

(Semester III)

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Brainware University
Barasat, Kolkata - 700125

Full Marks : 75

Time : 3:0 Hours

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A

(Multiple Choice Type Question)

1 x 20=20

1. Choose the correct alternative from the following :

- (i) Tell According to Fick's 1st law of diffusion
- | | |
|--|--|
| a) flux proportional to time | b) flux proportional to cross-sectional area |
| c) flux proportional to concentration gradient | d) flux proportional to path length |
- (ii) For real gas, positive deviation of Raoult's law observed when
- | | |
|---|-----------------------------|
| a) Adhesive force increased | b) Cohesive force increased |
| c) Both Adhesive force increased and Cohesive force increased | d) None of these |
- (iii) Identify the correct statement (s) regarding nematic liquid crystals.
- | | |
|--|---|
| a) Molecules have no positional order | b) Molecules have long-range orientational order |
| c) Both Molecules have no positional order and Molecules have long-range orientational order | d) Prepared by mixing two or more substances one of which is a polar molecule |
- (iv) Identify the most extensive type of glassy state.
- | | |
|---------------|----------------|
| a) First type | b) Second type |
| c) Third type | d) Fifth type |
- (v) Identify the type crystal system in urea.
- | | |
|---------------|---------------|
| a) Tetragonal | b) cubic |
| c) Rhombic | d) Monoclinic |
- (vi) Select the property which explains the ability of a compound to exists in more than one crystal form.
- | | |
|--------------------------|------------------------|
| a) amorphous in nature | b) polymorph in nature |
| c) amphiphilic in nature | d) None of these |
- (vii) Select the Higher the HLB value of surfactant, more _____ it is.
- | | |
|----------------|------------------|
| a) Hydrophilic | b) Lipophilic |
| c) Amphoteric | d) None of these |

- (viii) Predict A surfactant X forming poor/no dispersion in water at room temperature will be having an HLB value _____
- a) < 5
b) 7-10
c) 12-15
d) 15
- (ix) Predict Surface tension denotes the
- a) Adhesive force between immiscible liquid
b) Cohesive force between immiscible liquid
c) Cohesive force in a liquid
d) None of these
- (x) Identify the reason for the utilization of layer type inclusion complex for catalysis.
- a) Large surface area
b) Small surface area
c) Hydrogen bonding
d) Both Small surface area and Hydrogen bonding
- (xi) Identify the type of ligand under which EDTA can be categorized.
- a) Bidentate
b) Tridentate
c) Hexadentate
d) Pentadentate
- (xii) Identify the pH in which glycine forms complex with cupric ion.
- a) Acidic
b) Alkaline
c) Neutral
d) Both Acidic and Alkaline
- (xiii) Predict, Hypertonic solution when injected in to the blood stream may cause _____ of RBC
- a) Crenation
b) Hemolysis
c) Swelling
d) All of these
- (xiv) Predict If the litmus paper turns red in a solution, the solution is _____
- a) Acidic
b) Basic
c) Neutral
d) None of these
- (xv) Which one is the most accurate method of pH determination
- a) pH paper
b) Electrometric method
c) Colorimetric method
d) Titrimetric method
- (xvi) Choose the range of pH which can be measured by electrometric method
- a) 0.1-0.001
b) 0.1-0.0001
c) 0.01-0.001
d) 0.1-0.00001
- (xvii) Select in which transport system a drug make a complex form by its cationic portion with endogenous anion for the diffusion study
- a) Active transport
b) Passive transport
c) Ion-pair transport
d) Carrier-mediated transport
- (xviii) Choose the range of pH at which Bromophenol shows blue color
- a) 3-4.6
b) 3.8-5.4
c) 5.2-6.8
d) 5.9-7.6
- (xix) Choose the range of pH at which thymol blue shows blue color
- a) 3-4.6
b) 3.8-5.4
c) 6.8-8.4
d) 8-9.6
- (xx) Tell According to USP, insoluble compound requires _____ part of solvent for 1 part of solute.
- a) 1-10
b) 30-100
c) 30-1000
d) ≥ 10000

Group-B

(Short Answer Type Questions)

5 x 7=35

2. Define the term latent heat along with appropriate example (5)
3. Illustrate the details on Hypotonic, hypertonic and isotonic solution. (5)
4. Explain the phenomena of wetting and detergency (5)

5. Describe about the Raoult's law along with the differentiation between ideal & Real solution (5)
6. Enumerate the details on carrier mediated diffusion and facilitated diffusion (5)
7. Explain the application of organic molecular complexes along with its classification and examples in pharmaceutical formulation. (5)

OR

- Write in brief about dissociation constant and association constant in protein binding. (5)
8. Explain the methods of determining the tonicity of buffer solutions. (5)

OR

- Illustrate any four applications of buffers in biological systems (5)

Group-C

(Long Answer Type Questions)

10 x 2=20

9. Describe the Adsorption isotherm and explain Freundlich and Langmuir adsorption. (10)
10. Illustrate the electrometric method to determine of pH. (10)

OR

- Explain in detail the concept and significance of Sorensen's pH scale in pharmaceutical formulation. (10)

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