winter 2023

| | Sanjay Ghodawat University, Kolhapur<br>Established as State Private University under Govt. of Maharashtra.<br>Act No XL, 2017 | EXM/P/09/00 |
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| **Year and Program**<br>**S.Y.B.Pharm** | **School of Pharmaceutical Sciences** | **Department : Pharmacy** |
| **Course Code : BP302T** | **Course Title :**<br>**Physical Pharmaceutics I** | **Semester – III** |
| **Date:** 22/12/2023<br>**Day :** Friday<br>**Time:** 10.30 am to 1.30 pm | **Examination: End Semester** | **Max Marks: 75** |

**Instructions:** 1) All questions are compulsory.
2) Draw a neat labeled diagram if necessary.

| | | Marks | Bloom's Level | CO |
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| **Q.1** | **Objective Type Questions (10X2)** | **20** | | |
| a) | The following is applicable to supercritical fluids…….<br>A. Decreased viscosity than liquids<br>B. Decreased density than liquids<br>C. Increased viscosity than gases<br>D. All of the above | 01 | 01 | 01 |
| b) | Solid-solid interface imparts at…..<br>A. Tablet B. paste<br>C. Suspension D. Emulsion | 01 | 01 | 02 |
| c) | What is the surface tension of n-octanol at room temperature?<br>A. 72 dynes/cm B. 27 dynes/cm<br>C. 18 dynes/cm D. 36 dynes/cm | 01 | 01 | 02 |
| d) | ……defined as the moles of solute dissolved in 1000 g of solvent.<br>A. Molarity B. Molality<br>C. Normality D.None of above | 01 | 01 | 01 |
| e) | The concentration at which micelle formation occurs is termed as….<br>A. Kraft point B. Cloud point | 01 | 01 | 02 |

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C. isoelectric point D. CMC

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| f) | Sparingly soluble means that the part of solvent required for part of solute…<br>A. From 1-10 B. From 10-30<br>C. From 30-100 D. 100-1000 | 01 | 01 | 01 |
| g) | Isotonic solutions have the same…<br>A. Vapour pressure B. Osmotic pressure<br>C. Atmospheric pressure D. Internal pressure | 01 | 01 | 05 |
| h) | HLB value of detergent is between.:…<br>A. 1-3 B. From 3-6<br>C. 8-18 D. 13-15 | 01 | 01 | 02 |
| i) | Different ions will split up by different compounds to give of…..<br>A. Same colored complexes<br>B. Different colored complexes<br>C. Same density complexes<br>D. Same temperature complexes | 01 | 01 | 03 |
| j) | Which of the following factors influence solubility?<br>A. Temperature<br>B. Crystal properties<br>C. pH<br>D. all of the above | 01 | 01 | 01 |
| k) | Emulsion has shows ……..<br>A. Solid- liquid interface<br>B. Liquid-liquid interface<br>C. Solid-solid interface<br>D. Liquid -gas | 01 | 01 | 02 |
| l) | HLB value of o/w emulsifier is….<br>A. 3-8 B. 13-16<br>C.7-9 D. 8-16 | 01 | 01 | 02 |
| m) | Ratio of the increment (amount added) of strong acid or base to the small change in | 01 | 01 | 05 |

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pH (Δ pH) brought about by this addition is termed as.....

A. Buffer index B. buffer value

C. Buffr capacity D. All of above

n) .....[illegible] states that in a very dilute solution at constant temperature the concentration of dissolved gas is directly Proportional to the partial pressure of gas above the solution at equilibrium. 01 01 04

A. Henry's law B. Snell's law

C. Raoult law D. Hildebrand law

0) Isotonic solutions have the same... 01 01 05

A. Vapour pressure B. Osmotic pressure

C. Atmospheric pressure D. Internal pressure

p) Solubility depends upon..... 01 01 04

A. Temperature B. solute

C. solvent D. all of above

q) Which of the following is TRUE? 01 01 05

A. An effective buffer has very small absolute concentrations of acid and conjugate base.

B. A buffer cannot be destroyed by adding too much strong base. It can only be destroyed by adding too much strong acid.

C. A buffer is most resistant to pH change when [acid] = [conjugate base]

D. An effective buffer has a [base]/[acid] ratio in the range of 10 – 100.

r) Which of the following dissolves more rapidly? 01 01 04

A. Amorphous form B. Crystalline form

C. Polymorphic form D. Metastable form

s) Example of chelate..... 01 01 05

A. Cisplatin B. Iodine

C. Ferrocene D. Haemoglobin

t) The term 'Buffer capacity' first introduced by..... 01 01 05

A. Van Slyke B. Sorensen

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C. Bronsted D. Arrhenius

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| **Q.2** | **Long Answers (Answer 2 out of 3)** | **20** | | |
| a) | Define solubility. Explain the various factors affecting solubility of solids in liquids | 10 | 01 | 01 |
| b) | Enumerate different methods of analysis of complex. Explain continuous variation Method of analysis | 10 | 03 | 03 |
| c) | Describe Adsorption isotherms. Explain the behavior of various types of adsorption Isotherms with example | 10 | 02 | 02 |

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| **Q3** | **Short Answers (Answer 7 out of 9)** | **35** | **Bloom's Level** | **CO** |
| a) | Define and derive Raoult's law. Write its applications | 05 | 01 | 01 |
| b) | What is dipole moment? Explain in detail its method of determination. | 05 | 01 | 04 |
| c) | Define HLB and explain Griffins scale. | 05 | 01 | 02 |
| d) | Explain BET equation with examples. | 05 | 01 | 02 |
| e) | Define complex. Classify with example. | 05 | -01 | 03 |
| f) | Enumerate different methods of analysis of complex. Explain distribution method of analysis | 05 | 03 | 03 |
| g) | Give applications of buffers in pharmaceutical and biological system. | 05 | 05 | 05 |
| h) | Explain the various application of complexation in pharmacy with examples. | 05 | 01 | 03 |
| i) | What are eutectic mixtures? Explain with examples. | 05 | 01 | 04 |

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