

SAMPLE QUESTIONS
SEM IV
CLASS- S.Y.B.Sc
CHEMISTRY - PAPER II

PHYSICAL CHEMISTRY (UNIT-I)

1. Avogadro's number can be determined using relation _____ .
 - (a) $2M / 4d^3 \cdot \rho$
 - (b) $2M / (2d)^3 \cdot \rho$
 - (c) $4M / d^3 \cdot \rho$
 - (d) $4M / (2d)^3 \cdot \rho$

2. A cubic crystal has ratio of inter-planar distance
 $d_{100} : d_{110} : d_{111} = 1 : 0.707 : 1.154$
hence crystal plane belongs to _____ type.
 - (a) Simple Cubic Lattice
 - (b) Face-centered Cubic Lattice
 - (c) Body- centered Cubic Lattice
 - (d) Tetragonal Lattice

3. The rate expression for a general acid catalysed reaction is _____.
 - (a) Rate $\propto [H^+] [S]$
 - (b) Rate $\propto [H^+]$
 - (c) Rate $\propto [H^+]^2 [S]$
 - (d) Rate $\propto [HA] [S]$

4. The property of catalysts to change the direction of a reaction is called _____.
 - (a) Heterogeneous catalysis
 - (b) Catalytic selectivity
 - (c) Catalyst Support
 - (d) Homogeneous catalysis

5. A plane which makes intercept on x , y and z axis but will have its Miller indices as _____ .
- (a) 100
 - (b) 101
 - (c) 111
 - (d) 110

INORGANIC CHEMISTRY (UNIT-II)

1. A pK_b value of above 14 indicates-----.
- a) Non Basic Anion
 - b) Moderately Basic Anion
 - c) Weakly Basic Anion
 - d) Strongly basic anion
2. A cation with ----- will have -----.
- a) Higher Charge radius ratio, Higher hydration energy
 - b) Lower charge radius ratio, Zero hydration energy
 - c) Lower charge radius ratio, Higher hydration energy
 - d) Higher charge radius ratio, Lower Hydration energy
3. Cl^- ion -----.
- a) Does not undergo hydrolysis
 - b) Undergoes hydrolysis at $pH=10$
 - c) Undergoes hydrolysis at $pH=7$
 - d) Undergoes hydrolysis at $pH=2$
4. ----- industries are mainly responsible for NO_x pollution.
- a) Fertilizer
 - b) Metallurgical
 - c) Alcohol
 - d) Paper
5. ----- is used in the synthesis of Phosphoric acid.
- a) Fluorapatite
 - b) Gypsum
 - c) Cinnabar
 - d) Galena

ORGANIC CHEMISTRY (UNIT-III)

- 1) Which of the following amine on treatment with nitrous acid in cold condition gives alcohol?
- A Diethyl amine
 - B Trimethyl amine
 - C Propan-2-amine
 - D Piperidine
- 2) Aniline on direct Bromination gives.....
- A Bromobenzene
 - B ortho-Bromo aniline
 - C para-Bromo aniline
 - D 2,4,6-Tribromoaniline
- 3) Hoffmann Bromamide degradation reaction is used for the conversion of.....
- A Ethanol to ethanamine
 - B Acetamide to ethanamine
 - C Acetamide to Methanamine
 - D Methyl cyanide to ethanamine
- 4) Statement A: Thiophene is a Sulphur containing heterocycle.
Statement B: Diels-Alder reaction is not applicable for Furan molecule.
- A Statement A is True and Statement B is False
 - B Statement A is False and Statement B is True
 - C Both Statement A and B are True
 - D Both Statement A and B are False
- 5) Pyridine gives nucleophilic substitution reaction atposition.
- A 3 & 5
 - B 2 & 4
 - C 1 & 4
 - D 3 & 6