

Shri Pundlik Maharaj Mahavidyalaya Nandura
Subject- Chemistry B.sc-I (Sem-II) Year 2020
Practice Question Bank

Q. 1. A) Fill in the blank:

- I. In chlorobenzene chlorine atom is bonded to-----hybridized carbon atom of the benzene ring.
- II. The hybridization state of iodine in IF_7 molecule is -----
- III. In vinyl chloride, chlorine atom is bonded to----- hybridized carbon atom.
- IV. In alkyl chloride, chlorine atom is bonded to----- hybridized carbon atom.
- V. Vinyl chloride is----- reactive towards nucleophilic substitution than alkyl chloride.
- VI. Out of the triple bond in benzyne intermediate, one of the π bond is normal (p-p overlap) while the other π bond is formed due to ----- overlap.
- VII. Alcohols containing two hydroxyl groups are commonly called as -----.
- VIII. IUPAC name of Glycerol is-----.

B) Multiple choice questions.

- i) Dipole moment of CO_2 molecule is-----
a) +ve b) zero c) +ve & -ve d) None of these
- ii) The shape of PCl_5 molecule is ----
a) V-shape b) Trigonal bipyramidal c) T- shape d) Tetrahedral
- iii) Chlorobenzene is an example of -----
a) Alkyl halide c) alkenyl halide
b) Aryl halide d) haloalkane
- iv) Benzyl chloride is also known as -----
a) α - chlorotoluene c) benzal chloride
b) chlorobenzene d) none of the above
- v) Dihydric alcohol are also known as -----
a. diols c) geraniols
b. triols d) none of the above
- vi) What is the shape of XeO_4 molecule?
a Square Planer c. Pyramidal
b. Tetrahedral d. Linear

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C) Answer the following in one sentences

- i) Define Polarization.
- ii) Define dihydric alcohols.
- iii) Explain the polarization of the anion by the cation.
- iv) What are the non aqueous solvent?
- v) What is magnetic moment?
- vi) Define the term dipole moment.
- vii) Define polar molecules.
- viii) Define the velocity constant?
- ix) Define molecularity of reaction?
- x) What is meant half life of reaction?
- xi) Define velocity or speed of reaction?

Q. 2. Answer the following questions

- i) Define acid and base according to fux-flood concept.
- ii) how will you convert
 - a) Glycol to 1,4-dioxane
 - b) Glycerol to acrolein
- iii) Discuss any two applications of dipole moment.
- iv) What is hybridization? Give the conditions of hybridization.
- v) Calculate the number of unpaired electrons when $\mu_m = 4.9\text{BM}$
- vi) What is hybridization? Discuss the structure of SF_6 molecule on the basis of hybridisation.
- vii) Define hard acid and hard base with suitable example.
- viii) Explain benzene intermediate mechanism.
- ix) How will you convert benzyl chloride into benzyl amine.
- x) Define dipole movement- give its application.
- xi) Define paramagnetism and explain its properties.
- xii) Write down the electronic configuration of VIth group element (oxygen family).
- xiii) Explain why maximum covalency of O_2 is 2.

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- xiv) Explain acidic character of phenol.
- xv) Explain Claisen rearrangement.
- xvi) Explain zero order reaction with suitable example.
- xvii) Describe the effect of temperature on the rate of reaction.

Q.3. Answer the following questions

- i) Compare the reactivity of vinyl and allyl-Chloride towards nucleophilic substitution reaction.
- ii) What are paramagnetic substances? Give their characteristics.
- iii) How charge and size of a cation affects polarization of an ion? Explain.
- iv) Explain the rate of reaction for first order reaction.
- v) Explain the factors affecting on the rate of reaction.
- vi) Explain the Pseudo-order reaction with suitable example.
- vii) What are paramagnetic substances? Give their characteristics.
- viii) Explain ferromagnetism and antiferromagnetism.
- ix) How is electronegativity related to Hardness and softness of acids?
- x) Explain acids and bases in terms of "Theory of Solvent System"
- xi) What is SHAB principle? Discuss its applications.