

Shree M. P. Shah Arts and Science College, Surendranagar
B.Sc. Sem-3 Chemistry - Assignment-1 - 2019/20

Q:1 Answer the following questions in short. Each carries 02 marks.

- 1 Give interpretation of ψ and ψ^* or $\psi\psi^*$.
- 2 Drive wave function for H_2^+ or H_2 .
- 3 Write Schrodinger wave equation in three dimention.
- 4 What is Eigen function and Eigen value?
- 5 Write any two postulates of Wave mechanics.

Q:2 Answer the following questions in brief. Each carries 03 marks.

- 1 Derive potential energy and Schrodinger equation for H_2 .
- 2 Derive normalised wave function of H_2^+ based on MOT.
- 3 Define orthogonal and normalized wave function.
- 4 Prove that $\psi = 1/\sqrt{2} (\psi_s + \psi_p)$ is a normalized orthogonal.
- 5 Drive co-efficient of wave function of sp hybridization.

Q:3 Answer the following questions in detail. Each carries 05 marks.

- 1 Drive co-efficient of wave function of sp^2 hybridization.
- 2 Drive co-efficient of wave function of sp^3 hybridization.
- 3 Derive Schrodinger equation in three dimention (Cartesian Co-ordination)
- 4 Discuss Normalization and orthogonality condition.

Date of Submission: 30/07/2019

Shree M. P. Shah Arts and Science College, Surendranagar
B.Sc. Sem-3 Chemistry - Assignment-2 - 2019/20

Q:1 Answer the following questions in short. Each carries 02 marks.

- 1 Give structure of any two aryl halide.
- 2 Arrange chlorobenzene, bromobenzene, iodobenzene and fluorobenzene in decreasing relative reactivity towards aromatic nucleophilic substitution reaction.
- 3 Give general electronic configuration of lanthanides.
- 4 Give uses of Misch metal?

Q:2 Answer the following questions in brief. Each carries 03 marks.

- 1 Explain colour properties of lanthanides.
- 2 Write a short note on Ullmann reaction.
- 3 Explain Lanthanide Contraction.
- 4 Discuss Wurtz Fittig reaction.

Q:3 Answer the following questions in detail. Each carries 05 marks.

- 1 Write ion exchange method for the isolation of Lanthanides.
- 2 Discuss relative reactivity of alkyl, allyl/benzyl, vinyl and aryl halides.
- 3 Give name, symbol and electronic configuration of Lanthanide elements.
- 4 Discuss elimination addition mechanism for the aromatic nucleophilic substitution.

Date of Submission: 07/08/2019

Shree M. P. Shah Arts and Science College, Surendranagar
B.Sc. Sem-3 Chemistry - Assignment-3 - 2019/20

Q:1 Answer the following questions in short. Each carries 02 marks.

- 1 Write any two methods for preparation of alcohols.
- 2 Give formula of (a) Methyl magnesium bromide (b) Ethane-1,2-diol
- 3 What are amines? Give types of amine.
- 4 Give the name and structure of Heinsberg reagent.

Q:2 Answer the following questions in brief. Each carries 03 marks.

- 1 Write a note on Lucas test.
- 2 (a) Write product of reaction between acetone and LiAlH_4 .
(b) Write product of reaction between acetaldehyde and NaBH_4 .
- 3 Write any three methods for preparation of primary amine.
- 4 Describe method for preparation of primary amine.

Q:3 Answer the following questions in detail. Each carries 05 marks.

- 1 Explain method for preparation of different alcohols using Grignard reagent.
- 2 Discuss relative acidity of alcohols, phenols and carboxylic acids.
- 3 Write short note on Heinsberg method
- 4 Write a short note on Sandmayear reaction and azo coupling reaction.

Date of Submission: 19/08/2019

Shree M. P. Shah Arts and Science College, Surendranagar
B.Sc. Sem-3 Chemistry - Assignment-4 - 2019/20

Q:1 Answer the following questions in short. Each carries 02 marks.

- 1 Define Fries rearrangement.
- 2 Define degree of freedom of a system with example.
- 3 Define and explain the term solution.
- 4 Write modified Nernst's distribution law.

Q:2 Answer the following questions in brief. Each carries 03 marks.

- 1 Write down only mechanism of Kolbe-Schmitt reaction.
- 2 Explain Pattinson's method.
- 3 Explain the factors affecting solubility of a gas.
- 4 Write limitations of Nernst's distribution law.

Q:3 Answer the following questions in detail. Each carries 05 marks.

- 2 Discuss Claisen rearrangement.
- 3 Explain Zn-Mg system with its phase diagram and congruent melting point.
- 4 Write and explain Henry's Law.
- 5 Write a note on solvent extraction.

Date of Submission: 12/09/2019