

**Shree M. P. Shah Arts and Science College, Surendranagar**

**B.Sc. Sem-1 Chemistry - Assignment-1 - 2019/20**

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

- 1 Define Atomic radii.
- 2 Explain dual character of electron.
- 3 Define the terms sorption and desorption.
- 4 Define the terms adsorption and adsorbent.

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

- 1 Discuss Diagonal relation of boron with silicon..
- 2 Write a note of Aufbau, Pauli and Hund's principle.
- 3 Explain catenation.
- 4 Differentiate adsorption and absorption.

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

- 1 Write a short note on ionization potential.
- 2 Define quantum number. Explain them in detail.
- 3 Explain Heisenberg Uncertainty principle.
- 4 Derive Langmuir adsorption isotherm.

**Date of Submission: 31/07/2019**

# Shree M. P. Shah Arts and Science College, Surendranagar

## B.Sc. Sem-1 Chemistry - Assignment-2 - 2019/20

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

- 1 Explain that  $\text{CO}_2$  is linear while  $\text{SO}_2$  is angular.
- 2 Define SP hybridization.
- 3 What is shape of  $\text{PCl}_5$  molecule?
- 4 Define bond order.

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

- 1 What is called hybridization? Explain sp hybridization with suitable example.
- 2 Explain  $\text{SP}^2$  hybridization.
- 3 Give difference between BMO and ABMO.
- 4 Describe Valence Bond theory.

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

- 1 Write and explain VESPER theory in detail.
- 2 Describe main points of MOT.
- 3 Draw energy level diagram of  $\text{O}_2$  and calculate bond order and magnetic property of  $\text{O}_2^{+2}$ ,  $\text{O}_2^{+1}$ ,  $\text{O}_2^{-2}$ ,  $\text{O}_2^{-1}$  and  $\text{O}_2$ .
- 4 Explain  $\text{sp}^3\text{d}^2$  hybridization with example.

**Date of Submission: 08/08/2019**

# Shree M. P. Shah Arts and Science College, Surendranagar

## B.Sc. Sem-1 Chemistry - Assignment-3 - 2019/20

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

- 1 (a) Give IUPAC name of the following molecule. (b) Give EZ nomenclature of the following.
- 2 Hybridization of carbocation is .....
- 3 Give the general formula of alkanes.
- 4 Give the general formula of alkynes.

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

- 1 Discuss Saytzezz rule for elimination reaction of alkene.
- 2 Explain Diels Alder reaction.
- 3 Explain mesomeric effect with example.
- 4 Discuss applications of Inductive effect.

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

- 1 Discuss  $S_N1$  reaction in detail and differentiate  $S_N1$  and  $S_N2$  reactions.
- 2 Define carbocation. Discuss structure, stability and generation of carbocations.
- 3 Explain Markownikoff rule with mechanism.
- 4 Explain E1 reaction and its mechanism.

**Date of Submission: 20/08/2019**

**Shree M. P. Shah Arts and Science College, Surendranagar**

**B.Sc. Sem-1 Chemistry - Assignment-4 - 2019/20**

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

- 1 Define the term catalyst and promoter.
- 2 Define the terms molecularity and order of reaction.
- 3 What is A in Arrhenius equation?
- 4 Define energy of activation.

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

- 1 Write a note on homogeneous and heterogeneous catalysis.
- 2 Derive equation for rate constant of zero order reaction.
- 3 Write a note on enzyme catalysis.
- 4 Discuss the factors affecting the rate of reaction.

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

- 1 Explain various theories of catalysis.
- 2 Write various methods to determine order of reaction.
- 3 Explain characteristics of catalytic reaction.
- 4 Derive the equation of rate constant for the 2<sup>nd</sup> order reaction when  
(1) Concentration of reactant is same (2) Concentration of reactant is different.

**Date of Submission: 13/09/2019**