

Assignment -CHE-302

Sem V 2017

Unit Test I

UNIT I

Questions for Long Answer

- (1) With the help of proper example prove that $C_n^{n-1} \equiv C_n^{-1}$ & $C_n^n \equiv E$
- (2) Describe symmetry elements with examples.
- (3) Differentiate between (a) σ_v & σ_h (b) σ_v & σ_d (c) σ_d & σ_h
- (4) Show that: $S_n^2 \equiv C_n^2$ & $S_n^{2n} \equiv E$
- (5) Considering suitable molecule show that $S_n^n \equiv E$

Questions for Short Answer:

1. Write the symbol of symmetry elements.
2. Represent the symmetry elements present in CO
3. Define 'Principal axis of rotation'.
4. Write definition of 'Molecular Symmetry'.
5. Write definition of 'Symmetry Elements'.

UNIT II

Questions for Long Answer

- (1) Explain the bonding in H_2 molecule on the basis of valence bond theory. Obtain the following relation :
$$\Psi_{v.b} = \Psi_{\text{covalent}} + \lambda \Psi_{\text{ionic}}$$
- (2) Sketch M.O diagram of $[V(CN)_6]^{-2}$ OR $[IrF_6]^{-4}$ complex ions. Explain its magnetic properties.
- (3) Sketch M.O diagram of $[PtCl_4]^{-2}$ complex ions.
- (4) Discuss the structure and bonding of B_6H_{10} and B_5H_{11} molecules.
- (5) Discuss "Banana bond" in diborane.

Questions for Short Answer:

1. Write two limitation of valence bond theory.
2. Give the number of H- Bridge bond in B_4H_{10} .
3. Under which condition the VBT and MOT become identical.
4. Write the number of electrons in B_5H_9 .
5. How many B-H-B bonds present in B_2H_6 .
6. $[Fe(CN)_6]^{-4}$ is paramagnetic or Diamagnetic ? Why?

UNIT III

Questions for Long Answer:

1. Explain trans effect with suitable example and give its applications.
2. Explain trans effect on the basis of π – bonding theory.
3. Explain SN1 (dissociative) or SN2 (associative) mechanisms for octahedral complex.
4. Explain π –bonding theory for metal complexes.
5. Explain polarization theory for tetrahedral metal complexes.

Questions for Short Answer:

1. What is trans effect?
2. Define lability & inertness.
3. Give the limitation of polarization theory.

UNIT IV

Questions for Long Answer:

- (1) What is Inorganic Polymer? Explain the classification of Inorganic Polymer.
- (2) Explain a brief account on Borazine.
- (3) Explain the Inorganic Polymer of Silicon.
- (4) Write a short note on Boroxine OR Tri methyl borazine OR High thermal polymer.

Questions for Short Answer:

Why Borazine known as a Inorganic Benzene ?