

Shivaji College, University of Delhi
Department of Chemistry
Home Assignment (1)

Name of Course : B.Sc [Life Sciences]

Semester : VI (B)

Name of Paper : Organometallics, Bioinorganic chemistry, polynuclear hydrocarbons
2) UV, IR spectroscopy

Faculty Name : by Tamanna

Maximum : 25 Marks
Marks (scaled down to 5 Marks)

Attempt All Questions.

Que 1 Define Organometallic compound. Which of the following are organometallic compound. Give reasons.

- a) CH_3MgBr
- b) $\text{K}[\text{PtCl}_3(\text{C}_2\text{H}_4)]$
- c) $\text{B}(\text{OMe})_3$
- d) $(\eta^6\text{-C}_6\text{H}_6)_2\text{Cr}$

(5 Marks)

Que 2 Explain Coulson Treatment of Carbonyl ligand.
(Molecular Orbital Theory)

(5 Marks)

Que 3 Give the valence electron count of following Metals.

- (a) $\text{Fe}_2(\text{CO})_9$
- (b) $[\text{Mn}_2(\text{CO})_{10}]$

(5 Marks)

Que 4 Draw the structures of following compound

- a) Nickel tetracarbonyl $[\text{Ni}(\text{CO})_4]$
- b) Dicobalt octacarbonyl $[\text{Co}_2(\text{CO})_8]$ in ~~both~~ solid state

(5 Marks)

Que 5 Explain the changes observed in the IR stretching frequency of the C-O bond in (i) terminal & bridging carbonyl group

(ii) in carbonyl compounds of the same metal when some CO molecules are replaced by poor π acceptor group.

(5 Marks)