Roll No. .....

(07/21-II)

# 5252

## B. Sc. EXAMINATION

(For Batch 2011 & Onwards)

(Sixth Semester)

CHEMISTRY

Paper XVIII (CH-304)

Inorganic Chemistry

*Time : Three Hours* *Maximum Marks :* 27

**Note :** Attempt *Five* questions in all. Q. No. **1** is compulsory. Attempt *two* questions each from Section A and B.

### Compulsory Question

1. (a) What is meant by Ring Opening Polymerization ?

   (b) Draw Resonance Hybrid structures of cyclic $(NPCl_2)_3$.

(c) What is heme ?

(d) Name the metal present in chlorophyll.

(e) Out of $RNH_2$ or $R_3H$ which one will be a better base ?

(f) $N_2$ is isoelectronic with CO, but it is a poor $\sigma$ donor than CO. Explain.

(g) How will you prepare Wilkinson catalyst ?

## Section A

2. Write IUPAC names of the following : 5

(a) $[Mn(CO)_5(C_2H_4)]^+$

(b) $[(CO)_5\text{-}Mn\text{-}Mn(CO)_5]$

(c) $[(CO)_3\ Co(CO)_2Co(CO)_3]$

(d) $Fe(C_2H_5)_2$

(e) $Fe_2(CO)_4(C_5H_5)_2$

3. (a) Discuss the structure of $(LiCH_3)_4$. 1

(b) Briefly discuss the metal-carbon sigma bonding. 2

(c) Give the structure of $Fe_2(CO)_9$. 2



4. (a) Explain, why Cl-OH is an acid while NaOH is a base. 2

(b) Explain why $HNO_3$ is a stronger acid than $HNO_2$ ? 2

(c) Why is $[CoF_6]^{-3}$ complex more stable than $[CoI_6]^{-3}$ complex ? 1

## Section B

5. Define Hb, Mb and their deoxy derivatives. Discuss the role of Hb and Mb in transporting $O_2$. 5

6. (a) What are essential trace elements ? Describe the role of iron in mammals. 3

(b) How does biological nitrogen fixation take plae ? 2

7. (a) What are homomorphic and heteromorphic $\pi$ systems ? Explain. 3

(b) Draw polymeric backbones of silicones and phosphazenes. 2