

**SIXTH SEMESTER B.Sc. DEGREE (SUPPLEMENTARY/IMPROVEMENT)  
EXAMINATION, MARCH 2017**

(UG-CCSS)

Chemistry

CH 6B 15 – INORGANIC CHEMISTRY – II

Time : Three Hours

Maximum : 30 Weightage

**Section A**I. Answer *all twelve* questions :

1. An example for ambidentate ligand is :

- (a)  $\text{Cl}^-$ . (b)  $\text{NO}_2^-$ .  
(c)  $\text{NH}_3$ . (d)  $\text{H}_2\text{O}$ .

2. The isomerism exhibited by the complexes  $[\text{Co}(\text{NH}_3)_5 \text{Br}] \text{SO}_4$  and  $[\text{Co}(\text{NH}_3)_5 \text{SO}_4] \text{Br}$  :

- (a) Hydrate isomerism. (b) Linkage isomerism.  
(c) Ionization isomerism. (d) Co-ordination isomerism.

3. The hybridization of carbon atoms in  $\text{C}_5\text{H}_5^-$  ring is :

- (a)  $\text{sp}^3$ . (b)  $\text{sp}^2$ .  
(c)  $\text{sp}$ . (d)  $\text{sp}^3\text{d}$ .

4. Pyrex glass contains :

- (a)  $\text{MgO}$  and  $\text{Fe}_2\text{O}_3$ . (b)  $\text{B}_2\text{O}_3$  and  $\text{Al}_2\text{O}_3$ .  
(c)  $\text{CaO}$  and  $\text{PbO}$ . (d) None of these.

5. \_\_\_\_\_ is a micro nutrient in biological system.

6. One nanometer is \_\_\_\_\_.

7. Zeolites are \_\_\_\_\_ having a three dimensional network.

8. Calcium dihydrogen phosphate is commonly known as \_\_\_\_\_.

9. Give the IUPAC name of the complex  $[\text{Cr}(\text{H}_2\text{O})_4 \text{Cl}_2] \text{Cl}$ .10. What is the hybridization in  $[\text{NiCl}_4]^{2-}$  ion?

11. Give one example for Zeigler-Natta catalyst.

12. Which is the first known enzyme containing zinc?

(12 × ¼ = 3 weightage)

**Turn over**

**Section B**

II. Short Answer Type Questions. Answer *all nine* questions :

13. What are ligands?
14. What are high spin complexes? Give an example.
15. Write down the structure of  $\text{Fe}_3(\text{CO})_{12}$ .
16. What is the difference between heme and chlorophyll? Give any *one*.
17. What are qubits?
18. Give any *two* applications of silicones.
19. What are the important raw materials for making ceramics?
20. What are covalent carbides?
21. Give *one* method for the preparation of ferrocene.

(9 × 1 = 9 weightage)

**Section C**

III. Short Paragraph Questions. Answer any *five* questions :

22. What is meant by unidentate and bidentate ligand? Illustrate with example.
23. Discuss the limitations of CFT.
24. Give the method of preparation of carbonyls of Fe and Ni.
25. Discuss briefly the biochemistry of Ca.
26. Briefly explain the application of nanotechnology in catalysis.
27. Explain briefly on silicates.
28. Discuss the composition and setting of cement.

(5 × 2 = 10 weightage)

**Section D**

IV. Essay Questions. Answer any *two* questions :

29. How is glass manufactured? What are the different types of glasses?
30. Briefly explain the applications of organo metallic compounds.
31. Discuss with suitable examples the stereo-isomerism in co-ordination complexes.

(2 × 4 = 8 weightage)