

C 25730

(Pages 2)

Name.....

Reg. No.....

SIXTH SEMESTER B.Sc. DEGREE EXAMINATION, MARCH 2012

(CCSS)

Chemistry—Core Course

CH 6B 15—Core Course VIII—INORGANIC CHEMISTRY—II

Time : Three Hours

Maximum : 30 Weightage

Section A

I. Answer *all* questions :

1 The name of the complex $\text{Na}_2[\text{SiF}_6]$ is :

- (a) Sodium tetrafluorosilicate (IV).
- (b) Sodium hexafluorosilicate (IV).
- (c) Sodium difluorosilicate (VI).
- (d) None of the above.

2 Which of the following is an example for high spin Octahedral complex ?

- (a) $[\text{Fe}(\text{H}_2\text{O})_6]^+$
- (b) $[\text{Fe}(\text{CN})_6]^-$
- (c) $[\text{Co}(\text{NH}_3)_6]^+$
- (d) $[\text{Fe}(\text{CN})_6]^-$

3 Cs^+CH_3^- is an example for :

- (a) Ionic compound.
- (b) Ionic organo metallic compound.
- (c) Transition compound.
- (d) Ylides.

4 The glass used in automobiles and aeroplanes is :

- (a) Safety glass.
- (b) Ground glass.
- (c) Crooke's glass.
- (d) Crown glass.

5 Si is a _____ nutrient in biological system.

6 The football shaped cage like structures of carbon atoms are called _____

7 Phosphazenes are cyclic or chain polymers which contain _____ repeating units.

8 A fertilizer which contains more than one of the major nutrients is called a _____

9 Name the complex $[\text{Co}(\text{NH}_3)_5\text{CO}_3]\text{Cl}$

10 What is the Hybridization in $[\text{Ni}(\text{CO})_4]$?

Turn over

- 11 Give one application of **Zeigler-Natta** catalyst.
12 Name one biologically **important** cobalt containing compound.

(12 x 3 = 36 weightage)

Section B

II. Short Answer type questions. Answer *all* nine questions :

- 13 What is a **Chelate** ?
14 Why does NH_3 readily form complexes while NH_4^+ does not ?
15 Write down the structure of $\text{Co}_2(\text{CO})_8$.
16 What is meant by Bohr's effect ?
17 Name any *two* scanning probe instruments.
18 Give any two examples for **orthosilicates**.
19 What are ceramics ? Give one use.
20 What is **Carborandum** ? What is its use ?
21 Give equation for **Vilsmeier** reaction.

(9 x 4 = 36 weightage)

Section C

III. Short paragraph questions. Answer any *five* questions :

- 22 Give the postulates of Werner's co-ordination theory.
23 How is **CFT** useful in explaining the colour of transition metal complex ?
24 Explain the application of Wilkinson catalyst.
25 Give short note on the biochemistry of Mg.
26 Briefly explain the application of **nanotechnology** in biology.
27 Write short note on **zeolites**.
28 Explain the role of selenium in xerography.

(5 x 2 = 10 weightage)

Section D

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

- 29 Describe method for the manufacture of glass. What is annealing ?
30 Explain qualitatively the bonding in **ferrocenes**. What are its properties ?
31 Explain the different kinds of structural isomerism possible in complexes.

(2 x 4 = 8 weightage)