

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) $[\text{Fe}(\text{H}_2\text{O})_6]^{3+}$.
 - (b) $[\text{Fe}(\text{CN})_6]^{4-}$.
 - (c) $[\text{Co}(\text{NH}_3)_6]^{3+}$.
 - (d) $[\text{Fe}(\text{CN})_6]^{4-}$.
- 3 Cs^+CH 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 × ¼ = 3 weight)

Section B

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

- 13 What is a Chelate ?
- 14 Why does NH₃ readily form complexes while NH₄⁺ does not ?
- 15 Write down the structure of Co₂(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 × 1 = 9 weight)

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 × 2 = 10 weight)

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 × 4 = 8 weight)