

C 80046

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Name.....

Reg. No.....

SIXTH SEMESTER B.Sc. DEGREE EXAMINATION, MARCH/APRIL 2015

(U.G.-CCSS)

Core Course—Chemistry

CH 6B 15—INORGANIC CHEMISTRY – II

Time : Three Hours

Maximum : 30 Weightage

I. Answer all the *twelve* questions. Each question carries a weightage of $\frac{1}{4}$:

- 1 $[\text{CO}(\text{NH}_3)_5\text{SO}_4]\text{Cl}$ and $[\text{CO}(\text{NH}_3)_5\text{Cl}]\text{SO}_4$ are _____ isomers.
- 2 The co-ordination number and oxidation state respectively of metal M in the complex $[\text{M}(\text{NH}_3)_5\text{SO}_4]\text{Cl}$ are :
(a) 7 and 3. (b) 6 and 2.
(c) 6 and 3. (d) 6 and 4.
- 3 Hexa fluoro ferrate (III) ion is outer orbital complex. The number of unpaired electrons present in it is _____.
- 4 Which among the following is an inner orbital complex ?
(a) $\text{K}_3[\text{COF}_6]$. (b) $[\text{Fe}(\text{H}_2\text{O})_6]^{3+}$.
(c) $[\text{Ni}(\text{NH}_3)_6]^{2+}$. (d) $[\text{K}_4(\text{Fe}(\text{CN}))_6]$.
- 5 Give one example for a π -bonded organometallic compound.
- 6 What are Trihapto ligands ?
- 7 Wilkinson's catalyst is _____.
- 8 Heme contains _____ metal.
- 9 STM is _____.
- 10 Complete the following equation :
$$\text{S}_4\text{N}_4 \xrightarrow[220^\circ\text{C}]{\text{Ag}} \text{_____}$$
- 11 Flint glass is also known as _____.
- 12 Write the formula for hard glass.

($12 \times \frac{1}{4} = 3$ weightage)

II. Answer all the *nine* questions. Each question carries a weightage of 1 :

- 13 Draw the structure of Zeise's salt.

Turn over

- 14 What is Ziegler-Natta catalyst ?
- 15 What are polynuclear carbonyls ?
- 16 What is the significance of Sodium/Potassium pump ?
- 17 Give *one* example of an organometallic compound used as anticancer drug.
- 18 How will you prepare SiC nanowires ?
- 19 Write *two* uses of nanowires and nanotubes.
- 20 What are Silicons ?
- 21 Draw the structure of P_4S_3 .

(9 × 1 = 9 weightage)

III. Answer any *five* questions. Each question carries a weightage of 2 :

- 22 Discuss the geometrical isomerism exhibited by Co-ordination compounds.
- 23 Predict the geometry and magnetic behaviour of $[CuCl_4]^{2-}$ and explain.
- 24 Write briefly on the bonding in metal carbonyls.
- 25 Explain the oxygen binding mechanism in Myoglobin and Haemoglobin.
- 26 Write a note on image application.
- 27 Discuss the synthesis and applications of Phosphazenes.
- 28 Explain the manufacture of cement.

(5 × 2 = 10 weightage)

IV. Answer any *two* questions. Each question carries a weightage of 4 :

- 29 Write briefly on the application of co-ordination compounds in qualitative and quantitative analysis.
- 30 (i) Explain CFSE of octahedral and tetrahedral complexes with example.
(ii) How will you explain the colour of co-ordination compounds ?
- 31 Write notes on (i) Manufacturing of glass (ii) Refractory materials.

(2 × 4 = 8 weightage)