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Name.....

Reg. No.....

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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 ¼ :

1 $[CO(NH_3)_5SO_4]Cl$ and $[CO(NH_3)_5Cl]SO_4$ are _____ isomers.

2 The co-ordination number and oxidation state respectively of metal M in the complex $[M(NH_3)_5SO_4]Cl$ 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) $K_3[COF_6]$. (b) $[Fe(H_2O)_6]^{3+}$.

(c) $[Ni(NH_3)_6]^{2+}$. (d) $[K_4(Fe(CN))_6]$.

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 :

$$S_4N_4 \xrightarrow[220°C]{Ag} \text{_____}.$$

11 Flint glass is also known as _____.

12 Write the formula for hard glass.

(12 × ¼ = 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 weigh

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 weight

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 quantita 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 weighta