

SIXTH SEMESTER B.Sc. DEGREE EXAMINATION, MARCH 2014

(UG-CCSS)

Chemistry

CH 6B 15—INORGANIC CHEMISTRY—II

Time : Three Hours

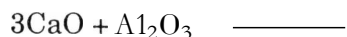
Maximum : 30 Weightage

I. Answer all the *twelve* questions. Each question carries a weightage of $\frac{1}{4}$. This section contains *multiple choice*, fill in the blanks and *one word answer* type questions.

1. Write an example for **quadridentate** ligand.
2. What is the **EAN** of Fe in $[\text{Fe}(\text{CO})_5]$
3. According to Werner's theory, the secondary **valencies** of the central metal atom correspond to its _____
4. **Hexafluorocobaltate (III)** ion is found to be high spin complex, the probable hybrid state of cobalt in it is :
(a) $d^2 sp^3$. (b) dsp^3 .
(c) $sp^3 d$. (d) $sp^3 d^2$.
5. **Organometallic** compound used in the purification of its metal is :
(a) $\text{Ni}(\text{CO})_4$. (b) $\text{Pb}(\text{C}_2\text{H}_5)_4$.
(c) $\text{Li-C}_4\text{H}_9$. (d) $\text{Na}_2[\text{Ni}(\text{CN})_4]$.
6. Why is $\text{Fe}_2(\text{CO})_9$ diamagnetic ?
7. **Porphyrine** contains a central 16-membered ring which consists of _____ carbon atoms and _____ nitrogen atoms.
8. **SEMs** of aligned **nanotubes** are obtained by the pyrolysis of _____
9. What is **phospham** ?

Turn over

10. Complete the following equation :



11. What is the substance added for the setting of cement ?

12. What is the main component in crown glass ?

(12 x 4 = 3 weightage)

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

13. What do you mean by a **flexidentate** ligand ?

14. Write the IUPAC name of $\text{K}_4[\text{Fe}(\text{CN})_6]$.

15. Write an example of a complex showing $d^2 sp^3$ hybridization.

16. What is Wilkinson's catalyst ?

17. What is haemoglobin ?

18. Describe **cytochromes**.

19. How will you prepare gallium nitrate **nanowire** ?

20. Write the preparation of **ZrS₂ nanotubes**.

21. What is pyrex glass ?

(9 x 1 = 9 weightage)

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

22. On the basis of **VB** theory, explain the hybridised state of $\text{Ni}(\text{CO})_4$.

23. Draw and explain the crystal field splitting in tetrahedral complexes.

24. Explain the use of **organosilicon** compounds in medicine.

25. Write a note on the application of **organometallic** compounds as catalysts.

26. Write briefly on anti-cancer drugs.

27. Explain the application of **nanotechnology** in biology.

28. Write a short note on phosphate fertilizers.

(5 x 2 = 10 weightage)

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

29. Explain the geometrical isomerism in coordination compounds.
30. How will you classify silicates ? Explain their structure.
31. Write in detail about the manufacture of glass.

(2 x 4 = 8 weightage)