QP CODE: 22100914

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Reg No : .....

Name : .....

B.Sc DEGREE (CBCS) REGULAR / REAPPEARANCE EXAMINATIONS, APRIL 2022

Sixth Semester

CORE COURSE - CH6CRT09 - INORGANIC CHEMISTRY

Common for B.Sc Chemistry Model I, B.Sc Chemistry Model II Industrial Chemistry & B.Sc Chemistry Model III Petrochemicals

2017 Admission Onwards

9D3E0C39

Time: 3 Hours Max. Marks : 60

Part A

*Answer any **ten** questions.*

*Each question carries **1** mark.*

1. What is coordination isomerism? Give example.
2. What are chelates? Give an example.
3. Calculate the EAN of (a) $[Cr(CO)_6]$ and (b) $[Ni(CO)_4]$
4. What is the hybridisation and geometry of the complex $[Fe(CN)_6]^{4-}$?
5. Calculate CFSE for a Tetrahedral complex having d^9 electronic configuration.
6. Find the magnetic property of the complex $[CoF_6]^{3-}$
7. Give the Irving William's order of stability.
8. What are pentahapto ligands? Give an example.
9. Name an organometallic catalyst used for hydrogenation of alkenes.
10. What are metal carbonyls? Give an example.
11. What is the function of carbonic anhydrase?
12. What are the possible positive oxidation states of iodine?

(10×1=10)

Part B

*Answer any **six** questions.*

*Each question carries **5** marks.*

13. What are ligands? How are they classified?

14. Explain the spectral behaviour of transition metal complexes on the basis of crystal field theory.

15. Explain the application of coordination complexes in quantitative analysis.

16. Write any two reactions of Ferrocene and explain its bonding using VBT.

17. What is Zeise's salt? Describe bonding in Zeise's salt.

18. What do you mean by cooperativity effect in Haemoglobin?

19. Draw and explain the structure and bonding of Diborane.

20. Explain the preparation and properties of ICl_3.

21. Find out the hybridisation of Xe present in XeF_4. Draw and explain the structure of XeF_4.

(6×5=30)

Part C

*Answer any **two** questions.*

*Each question carries **10** marks.*

22. (i) Explain sigma bonding of octahedral complexes using Molecular orbital theory? (ii) Draw Molecular orbital diagram for $[Co(NH_3)_6]^{3+}$ and predict its magnetic property.

23. Explain trans effect. Discuss on the applications of trans effect.

24. Explain in detail, the structure and bonding in $[Re_2Cl_8]^{2-}$.

25. Write a short note on (a) cytochromes (b) Na – K pump (c) Photosynthesis

(2×10=20)