E 1748 (Pages : 2) Reg. No.....

Name.....

B.Sc. DEGREE (C.B.C.S.S.) EXAMINATION, OCTOBER 2015

Fifth Semester

Core Course—CHEMISTRY OF D AND F BLOCK ELEMENTS

(Common for B.Sc. Chemistry Model I and Model II, B.Sc. Petrochemicals, B.Sc. Chemistry Environment and Water Management)

[2013 Admissions]

Time : Three Hours Maximum : 60 Marks

Part A

Answer **all** *questions.*
Each questions carries 1 *mark.*

1. What is hapticity ?
2. Draw the structure of Zeise's salt.
3. State EAN rule.
4. Give the electronic configuration of Cu^{2+} ion.
5. Give two examples of anticancer drugs.
6. Name a bidentate ligand.
7. What is the denticity of EDTA ligand ?
8. Give a method for the preparation of $Mn(CO)_6$.

(8 × 1 = 8)

Part B

Answer any **six** *questions.*
Each question carries 2 *marks.*

9. State and explain 18 e^- rule.
10. Most of the compounds of transition metals are coloured. Why ?
11. What is Chelate effect ?
12. What are metallo enzymes ? Give an example.
13. What are low nuclearity carbonyl clusture ? Give an example.
14. Give one preparation method for ferrocene.
15. Illustrate stereoisomerism in co-ordination complexes using an example.
16. Explain biological function of cytochrome.

Turn over

17. State and explain valence bond theory.

18. What is meant by poisoning and inhibition of enzyme ?

(6 × 2 = 12)

Part C

Answer any **four** *questions.*
Each question carries 4 *marks.*

19. Write a note on catalytic properties of organometallic compounds.

20. Explain the structure of $Re_2Cl_8^{2-}$.

21. Compare the structures of myoglobin and Haemoglobin.

22. What are low spin and high spin complexes ? Explain with examples.

23. Explain trans effect and its application.

24. Give a short note on the magnetic properties of lanthanides.

(4 × 4 = 16)

Part D

Answer any **two** *questions.*
Each question carries 12 *marks.*

25. Discuss the mechanism of oxygen transport in blood.

26. Explain the isomerism shown by co-ordination compounds.

27. (a) Write a short note on metal alkine complexes. (6)

    (b) What are carbine complexes and carbyne complexes ? Give examples. (6)

28. Write a short note on carbonyl clusters and halide clusters.

[2 × 12 = 24]