B.Sc. DEGREE (C.B.C.S.S.) EXAMINATION, OCTOBER 2016

Fifth Semester

Core Course

CHEMISTRY OF D AND F BLOCK ELEMENTS

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

[2013 Admission onwards]

Time : Three Hours   Maximum : 60 Marks

Part A

Answer all questions.
Each question carries 1 mark.

1. Name a chelating ligand.

2. Draw the Structure of Ferrocene.

3. State EAN rule.

4. Give the electronic configuration of Ni^{2+}.

5. Illustrate stereoisomerism in co-ordination.

6. What are Ylides ?

7. Give *two* biological function of copper.

8. Give a method for the preparation of $Fe(Co)5$.

$(8 \times 1 = 8)$

Part B

Answer any six questions.
Each question carries 2 marks.

9. Why transition metals show variable oxidation states ?

10. What is cisplastin ? What is its use ?

11. What is Bohr effect ?

12. Explain Werner's theory of co-ordination.

13. What are high nuclearity carbonyl clusters ? Give an example.

14. Illustrate structural isomerism in co-ordination complexes.

15. Write the preparation of Zeisc's salt.

Turn over

16. Explain biological function of cytochrome.

17. What are Zintl ions ?

18. Classify organometallic compounds on the basis of hapticity. Give examples.

$(6 \times 2 = 12)$

Part C

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

19. What are bridged carbonyls ? Explain the bonding in bridged carbonyl with example.

20. Write a note on Na/K pump.

21. What are stepwise stability constants and overall stability constants. Illustrate with an example.

22. Explain Jahn-Teller distortion with example.

23. Write a note on Zeiglar - Natta Polymerisation.

24. Explain lanthanide contraction.

$(4 \times 4 = 16)$

Part D

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

25. (a) Explain crystal field theory.

    (b) Write briefly on crystal field splitting in octa hedral and tetra hedral complexes.

26. Give a short note on spectral and magnetic properties of lanthanides.

27. Discuss the mechanism of oxygen transport in blood.

28. Write a short note on metal alkyne complexs and metallocenes. Explain with examples.

$(2 \times 12 = 24)$