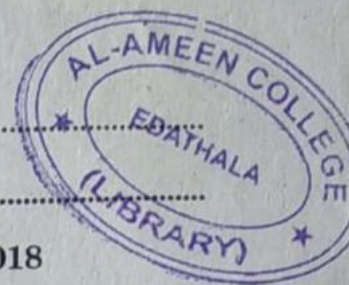


E 5255

(Pages : 2)

Reg. No.....

Name.....



B.Sc. DEGREE (C.B.C.S.S.) EXAMINATION, OCTOBER 2018

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]

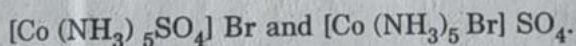
Time : Three Hours

Maximum Marks : 60

Part A

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

1. What is Chelate effect ?
2. Give the IUPAC names of :
 - (a) $[\text{Cr}(\text{H}_2\text{O})_4\text{Cl}_2] \text{Cl}$.
 - (b) $\text{K}_4[\text{Mo}(\text{CN})_6]$.
3. What is Zeise salt ? How is it prepared ?
4. How is water gas synthesized ?
5. What is Bohr effect ?
6. Differentiate between low spin and high spin complexes.
7. Cupric salts are coloured give reason.
8. How will you distinguish between ?



(8 × 1 = 8)

Part B

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

9. From $\text{Fe}(\text{CO})_5$ how many CO can be removed by two NO Groups substantiate your answer.
10. Differentiate between Carbene and Carbyne complexes giving examples.
11. What are Ylides ? How are they classified ?
12. Organo metallic compounds are normally used as catalyst ? Give reasons.

Turn over

13. Explain Zeigler NaHa Polymerisation.
14. What is Trans effect ? Give one of its application.
15. Give one application each of Co-ordination Compounds in Qualitative and Quantitative analysis.
16. What is Lanthanide contraction ? What are its consequences ?
17. Europium shows + 2 oxidation state in addition to + 3 oxidation state, why ?
18. What is Jahn-Teller distortion ? Explain.

(6 × 2 = 12)

Part C

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

19. Explain the Diamagnetic property of Ferrocene on the Basis of valence Bond theory.
20. Briefly discuss the functions of Sodium-Potassium pump.
21. Write a note on Essential and trace elements in Biological systems. Also explain the functions.
22. Discuss on the Bonding in metal carbonyls.
23. How are individual Lanthanides separated by ion exchange method ?
24. Discuss the magnetic properties of Lanthanides.

(4 × 4 = 16)

Part D

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

25. (a) What is crystal field theory, explain ?
(b) How does it differ from valence bond theory ?
(c) How does it explain the magnetic properties and colour of co-ordination compounds.
26. Write a brief account on Different types of isomerisms in co-ordination compounds with suitable examples.
27. Write a note on the following :
 - (a) Role of Blood as oxygen carrier.
 - (b) Treatment on Metal toxicity.
 - (c) Anticancer drugs.
 - (d) Cytochromes.
28. (a) What are metal clusters ? How are they classified explain with examples for each ?
(b) Write a note on the following :—
 - (i) Quadruple bond.
 - (ii) Werner's theory of Co-ordination.

(2 × 12 = 24)