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**UNIVERSITY**

(Karunya Institute of Technology & Sciences)

(Declared as Deemed-to-be University under Sec.3 of the UGC Act, 1956)

Reg.No. \_\_\_\_\_\_\_\_\_\_\_\_\_

**End Semester Examination – Nov/Dec - 2016**

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|  |  | **Semester :** | **2016-17 ODD** |
| **Code :** | **10NT210** | **Duration :** | **3 hrs** |
| **Sub. Name :** | **Inorganic and Coordination Chemistry** | **Max. marks :** | **100** |

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| **Q. No.** | **Questions** | **Marks** |
| **PART-A(10X1=10 MARKS)** | | |
| 1. | Define: Sigma bond | (1) |
| 2. | Define: hybridization | (1) |
| 3. | What is meant by Coordination number? | (1) |
| 4. | Give one example for polydentate ligand | (1) |
| 5. | What is Grignard reagent? | (1) |
| 6. | What is the oxidation state of cobalt in [Co(H2O)(CN)(en)2]Cl2? | (1) |
| 7. | Define: CFSE | (1) |
| 8. | What is the metal present in Hemoglobin? | (1) |
| 9. | What is the function of Myoglobin? | (1) |
| 10. | Define: Chelation | (1) |

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| **PART B(5 X 3= 15 MARKS)** | | |
| 11. | Draw the MO diagram of H2 molecule. | (3) |
| 12. | Explain the applications of crystal field theory. | (3) |
| 13. | Explain the functions of Blue copper protein. | (3) |
| 14. | Define: EAN Rule and Mention its application. | (3) |
| 15. | What are organometallic compounds? Provide any two examples? | (3) |

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| **PART C(5 X 15= 75 MARKS)** | | | |
| 16. | a. | Explain Pearson’s Acid-Base concept. | (8) |
| b. | Explain the salient features of VSEPR theory. | (7) |
| (OR) | | | |
| 17. | a. | Explain the MO theory with an example. | (8) |
| b. | Discuss the limitations of VBT. | (7) |
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| 18. | a. | Discuss the isomerisms in coordination compounds. | (8) |
| b. | Explain Werner’s theory. | (7) |
| (OR) | | | |
| 19. | a. | Discuss the general characteristics of d-block elements. | (10) |
| b. | Explain how to calculate spin only magnetic moment? | (5) |
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| 20. | a. | Describe the crystal field splitting of’d ' orbitals in octahedral complexes. | (10) |
| b. | Explain the preparation and reactivities of organo-lithium compounds. | (5) |
| (OR) | | | |
| 21. | a. | Explain the preparation and reactivities of Grignard reagent. | (8) |
| b. | Explain the preparation and reactivities of sulphonamide. | (7) |
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| 22. | a. | Discuss the nature of bonding in metal carbonyls. | (8) |
| b. | Differentiate Kinetic stability and thermodynamic stability of metal complexes. | (7) |
| (OR) | | | |
| 23. | a. | Explain the preparation and applications of organo-zinc compounds | (10) |
| b. | Explain the structure and functions of Non-heme proteins. | (5) |
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| 24. | a. | Explain the structure and functions of hemoglobin. | (10) |
| b. | Explain the co-operativity effect. | (5) |
| (OR) | | | |
| 25. | a. | Explain the electron flow mechanism in photo synthesis. | (10) |
| b. | Describe the functions of Chlorophyll. | (5) |

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