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

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**End Semester Examination – Nov/Dec – 2018**

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| **Code :** | **16CH2004** | **Duration :** | **3hrs** |
| **Sub. Name :** | **CHEMISTRY OF TRANSITION AND INNER- TRANSITION ELEMENTS** | **Max. marks :** | **100** |

**ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)**

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| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. |  | How do the following properties vary in the transition elements?   1. Variable Oxidation state 2. Size of Atoms and ions 3. Abundance 4. Class –a and Class- b acceptors | CO1 | 20 |
| (OR) | | | | |
| 2. | a. | Sketch the block diagram of Gouy magnetic balance and explain its functioning. | CO1 | 10 |
| b. | Write a short notes on the following.   1. Catalytic properties of d block elements 2. Non-stoichiometry in transition elements. | CO1 | 10 |
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| 3. | a. | Enumerate Werner’s Coordination theory with suitable example. | CO2 | 10 |
| b. | Explain the following terms with examples.   1. Structural Isomerism. 2. Polymerisation Isomerism. | CO2 | 10 |
| (OR) | | | | |
| 4. | a. | Differentiate between a double salt and coordination compound. | CO2 | 5 |
| b. | Discuss the Valence bond theory on [Ni(NH3)4]2+ tetrahedral complexes with its assumptions and defects. | CO2 | 10 |
| c. | List out the any two types of ligand with suitable example. | CO2 | 5 |
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| 5. |  | Explain the method of finding out the crystal field splitting value for an octahedral complex with an example. Discuss its merits, assumptions and consequences. | CO2 | 20 |
| (OR) | | | | |
| 6. | a. | State and explain the Jahn-Teller Theorem with neat diagrams. | CO2 | 10 |
| b. | Describe the importance of chelates in biology and analytical chemistry. | CO2 | 10 |
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| 7. |  | Discuss the structure, bonding , preparation and properties of Ferrocene. | CO2 | 20 |
| (OR) | | | | |
| 8. | a. | Bring out the role of Zeigler Natta Catalyst in the preparation of Polyethylene and discuss it. | CO2 | 10 |
| b. | Identify the specific uses of organometallic compounds. | CO2 | 10 |
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|  | | **Compulsory**: |  |  |
| 9. | a. | Discuss the oxidation states and separation of lanthanide elements. | CO3 | 10 |
| b. | Describe the methods which have been used to separate the isotopes of uranium and explain the difficulties present in these methods. | CO3 | 10 |