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



**End Semester Examination – Nov/Dec – 2017**

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| **Code :** | **14CH2001** | **Duration :** | **3hrs** |
| **Sub. Name :** | **BASIC INORGANIC CHEMISTRY** | **Max. marks :** | **100** |

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

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| Q. No. | Sub Div. | Questions | Course Outcome | Marks |
| 1. | a. | Explain the Bohr’s atomic model with a neat diagram? | CO I | 8 |
| b. | Explain the J. J. Thomson atomic model? | CO 1 | 7 |
| c. | What is the major drawback of Rutherford nucleus model? | CO I | 5 |
| (OR) | | | | |
| 2. | a. | Write short notes on: i. Hund’s rule ii. aufbau principle iii. Pauli exclusion principle iv. Octant rule. | CO I | 12 |
| b. | Explain the discovery of Nucleus using Rutherford model? | CO I | 8 |
|  |  |  |  |
| 3. | a. | Derive the Schrodinger wave equation. | CO2 | 12 |
|  | b. | Briefly Discuss the duel nature of the electron? | CO1 | 8 |
| (OR) | | | | |
| 4. | a. | Explain the discovery of Cathode and Anode rays? Give any two properties of cathode and Anode rays? | CO1 | 14 |
|  | b. | Write short notes on: i. atomic number ii. mass number | CO1 | 6 |
|  |  |  |  |  |
| 5. | a. | Highlight the salient feature of a ionic bond? Illustrate with the specific example? | CO2 | 10 |
|  | b. | Write the Lewis structure of the following ionic compounds, H2, O2, N2? | CO2 | 6 |
|  | c. | Write a short note on metallic bond? | CO2 | 4 |
| (OR) | | | | |
| 6. | a. | Explain the types of covalent bonds with suitable example? | CO2 | 4 |
|  | b. | Write the Lewis structure of the following ionic compounds, NaCl, CaF2, Al2O3, MgO? | CO2 | 12 |
|  | c. | List out the physical properties of metallic bonds? | CO2 | 4 |
|  |  |  |  |  |
| 7. | a. | Describe the salient features of Molecular Orbital Theory with Suitable examples? | CO2 | 10 |
|  | b. | Discuss the VSEPR theory with suitable example? | CO2 | 6 |
|  | c. | Write the molecular orbital diagram of O2 molecule? | CO2 | 4 |
| (OR) | | | | |
| 8. | a. | Explain Born – Habber cycle for analysis of reaction energy. | CO2 | 8 |
|  | b. | Why bond angle of H2O and NH3 are different when compared to BF2 and CH4? Give valid reasons? | CO2 | 6 |
|  | c. | Find out the structure of the following compounds using valence bond theory: i. CH4, ii. PF5. | CO2 | 6 |
|  | | **Compulsory:** |  |  |  |
| 9. | a. | Briefly discuss the Bronsted- Lowry concept of ‘Acids and Bases’? | CO3 | 7 |
|  | b. | Explain the duel behavior of water? Give any two example? | CO3 | 5 |
|  | c. | Classification of the Hard and Soft Acids and Bases(HSAB)? | CO3 | 8 |

ALL THE BEST