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



**UNIVERSITY**

(Karunya Institute of Technology & Sciences)

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

**End Semester Examination – April/May – 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. | What is the difference between Organic and Inorganic chemistry? | CO1 | | | 6 | |
| b. | Explain the J. J. Thomson atomic model. | CO1 | | | 8 | |
| c. | Explain the discovery of Proton and Electron. | CO2 | | | 6 | |
| (OR) | | | | | | | |
| 2. | a. | Derive the Schrodinger wave equation. | CO2 | | 10 | | |
| b. | Briefly Discuss the duel nature of the electron. | CO1 | | 5 | | |
| c. | What is the major drawback of Rutherford nucleus model? | CO1 | | 5 | | |
| 3 | a. | Compare and contrast between ionic and covalent bonds. | CO2 | | 10 | | |
|  | b. | Define the co-ordinate bond? Illustrate with an example. | CO2 | | 4 | | |
|  | c. | Write the Lewis structure of the following ionic compounds, H2, O2, N2? | CO2 | | 6 | | |
| (OR) | | | | | | | |
| 4. | a. | Briefly discuss the Lewis theory with suitable example. | | CO2 | | 10 | |
|  | b. | Write a short note on metallic bond. | | CO2 | | 5 | |
|  | c. | What is the condition for formation of co-ordinate bonds? | | CO2 | | 5 | |
| 5. | a. | Explain Born – Habber cycle for analysis of reaction energy. | | CO2 | | 12 | |
|  | b. | Why bond angle of H2O and NH3 are different when compared to BF2 and CH4? Give valid reasons. | | CO1 | | 8 | |
| (OR) | | | | | | | |
| 6. | a. | Briefly discuss the effect of electro negativity in VSEPR theory with suitable example. | | CO2 | | | 12 |
|  | b. | Find out the structure of the following compounds using valence bond theory :  i) CH4, ii) PF5. | | CO2 | | | 8 |
| 7. | a. | Explain the valence bond theory with suitable examples. | | CO2 | | | 10 |
|  | b. | Find out the bond order and magnetic properties of B2 and C2 homonucleus diatomic molecules using molecular orbital theory. | | CO1 | | | 10 |
| (OR) | | | | | | | |
| 8. | a. | Briefly discuss the order of energy level in the molecular orbital diagram. | | CO2 | | | 10 |
|  | b. | Find out the bond order and magnetic properties of CO and NO heteronucleus diatomic molecules using molecular orbital theory. | | CO1 | | | 10 |
|  | | **Compulsory:** | |  | | |  |
| 9. | a. | Describe the Lewis concept of ‘Acid and Bases’. | | CO2 | | | 10 |
|  | b. | Give the classification of the Hard and Soft Acids and Bases (HSAB). | | CO2 | | | 10 |

ALL THE BEST