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



**End Semester Examination – Nov / Dec – 2019**

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| **Code :** | **16CH2001** | **Duration :** | **3hrs** |
| **Sub. Name :** | **CHEMICAL BONDING AND CONCEPTS OF ACIDS AND BASES** | **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. | Write short notes on atomic number and mass number. | CO1 | 10 |
| b. | Write short notes: i) Hund’s rule ii) octant rule | CO1 | 10 |
| **(OR)** | | | | |
| 2. | a. | What is the major drawback of Rutherford nucleus model? | CO1 | 5 |
| b. | Explain the Bohr’s atomic model with a neat diagram. | CO1 | 10 |
| c. | Briefly discuss the dual nature of the electron. | CO1 | 5 |
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| 3. | a. | Explain the types of covalent bonds with suitable example. | CO2 | 10 |
| b. | Write the Lewis structure of the following ionic compounds, NaCl, CaF2, Al2O3, MgO. | CO2 | 10 |
| **(OR)** | | | | |
| 4. | a. | Highlight the salient feature of an ionic bond? Illustrate with the specific example. | CO2 | 10 |
| b. | Define the co-ordinate bond. What is the condition for formation of co-ordinate bonds? | CO3 | 10 |
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| 5. | a. | What are crystal defects? Explain the types of Defects. | CO3 | 10 |
| b. | Explain Born – Habber cycle for analysis of reaction energy. | CO2 | 10 |
| **(OR)** | | | | |
| 6. | a. | List out the physical properties of metallic bonds. | CO2 | 10 |
| b. | Briefly discuss on ‘super conductivity’ with an example. | CO2 | 10 |
|  |  |  |  |  |
| 7. | a. | Describe the salient features of molecular orbital theory with suitable examples. | CO3 | 12 |
| b. | Why bond angle of H2O and NH3 are different when compared to BF2 and CH4? Give valid reasons. | CO3 | 8 |
| **(OR)** | | | | |
| 8. | a. | Explain the valence bond theory with suitable examples. | CO3 | 10 |
| b. | Find out the bond order and magnetic properties of CO and NO heteronucleus diatomic molecules using molecular orbital theory. | CO3 | 10 |
|  | | **Compulsory**: |  |  |
| 9. | a. | Describe the Arrhenius concept of acids and bases with suitable examples. | CO4,  CO5 | 10 |
| b. | Explain the various types of silicates with neat diagram. | CO6 | 10 |