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 – Nov/Dec– 2017**

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| **Code :** | **16CH2003** | **Duration :** | **3hrs** |
| **Sub. Name :** | **ATOMIC STRUCTURE, THERMODYNAMICS AND ELECTROCHEMISTRY** | **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 different concept of atomic orbital and explain the differences between orbit and orbital with suitable examples. | CO2 | 10 |
| b. | Calculate the frequency and wave number of green light having wavelength equal to 7500o A0. | CO3 | 8 |
| c. | Define the term Wave frequency. | CO1 | 2 |
| (OR) | | | | |
| 2. | a. | Discuss Ruther Ford’s Gold foil experiment with neat diagram. | CO2 | 10 |
| b. | Write a note on Photo electric effect with neat diagram. | CO2 | 8 |
| c. | Define the term Wave length. | CO1 | 2 |
| 3. | a. | State the Second law of thermodynamics. Explain it. | CO2 | 10 |
|  | b. | Derive Gibbs Duhem equation. | CO2 | 10 |
| (OR) | | | | |
| 4. | a. | Describe the following terms.  i.Isobaric ii.Steam Point iii. Intensive property iv. Endothermic process v. Isochroic Process | CO2 | 10 |
|  | b. | Explain the relationship between pressure, volume and work. | CO2 | 10 |
| 5. | a. | Give the description of Alkaline batteries and its functioning during discharging and recharging. | CO2 | 10 |
|  | b. | Calculate the reduction potential of Cu2+/Cu = 0.05 M at 25oC. EoCu2+/Cu­­= 0.337V. | CO3 | 6 |
|  | c. | What are lithium batteris? Give the merits. | CO2 | 4 |
| (OR) | | | | |
| 6. | a. | Explain the construction of H2-O2 battery with advantages. | CO2 | 10 |
|  | b. | How will you derive Nernst equation and give its application. | CO2 | 10 |
| 7. | a. | Discuss in detail about Differential aeration corrosion with neat diagram. | CO2 | 10 |
|  | b. | How does modification of the environment help in inhibiting corrosion control? | CO2 | 10 |
| (OR) | | | | |
| 8. | a. | Enumerate the Sacrificial anodic methods with neat diagram. | CO2 | 10 |
|  | b. | Explain the mechanism involved in Wet Corrosion. | CO2 | 10 |
|  | | **Compulsory**: |  | 10 |
| 9. | a. | How to calculate Energy and Wave function of a Particle in One Dimensional Box. | CO2 | 10 |
|  | b. | What are quantum numbers? Explain their significance. | CO2 | 10 |

ALL THE BEST