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 :** | **13CH201** | **Duration :** | **3hrs** |
| **Sub. Name :** | **APPLIED 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 method of softening hard water using zeolite. Give its advantages and disadvantages. | CO1 | 10 |
| b. | Calculate total, permanent and temporary hardness of a sample water containing  Ca(HCO3)2 = 160 ppm, CaCl2 = 110 ppm, MgCl2 = 190ppm | CO1 | 5 |
| c. | Write note on boiler corrosion by dissolved oxygen. | CO1 | 5 |
| (OR) | | | | |
| 2. | a. | Define reverse osmosis. How is sea water desalinated by reverse osmosis? Write its advantages. | CO1 | 9 |
| b. | Write note on break point chlorination. | CO1 | 6 |
| c. | What are the disadvantages of scales? | CO1 | 5 |
| 3. | a. | Write the preparation,properties and uses of polyvinyl chloride. | CO2 | 10 |
|  | b. | Differentiate between thermoplastics and thermosetting plastics. | CO2 | 6 |
|  | c. | Define condensation polymerization. Give one example. | CO2 | 4 |
| (OR) | | | | |
| 4. | a. | How is bakelite prepared? Write its properties and uses. | CO2 | 10 |
|  | b. | What are the drawbacks of raw rubber ? | CO2 | 5 |
|  | c. | Discuss the role of any five moulding ingredients. | CO2 | 5 |
| 5. | a. | Explain the analysis of flue gas using Orsat apparatus. | CO2 | 10 |
|  | b. | How is CNG prepared? What are its advantages ? | CO2 | 5 |
|  | c. | Calculate the gross and net calorific value of coal containing carbon - 80% ; hydrogen – 8% ; Oxygen-2%; Sulphur – 2%latent heat of steam =587kcal/kg | CO2 | 5 |
| (OR) | | | | |
| 6. | a. | How is coke analysed by proximate analysis? | CO2 | 10 |
|  | b. | Explain the method of manufacture of gobar gas with a neat diagram. | CO2 | 10 |
| 7. | a. | Define electrode potential.Derive the expression for Nernst equation. | CO3 | 10 |
|  | b. | Write note on sacrificial anodic protection. | CO3 | 5 |
|  | c. | Explain the reactions during charging of lead acid battery. | CO3 | 5 |
| (OR) | | | | |
| 8. | a. | Define fuel cell.Explain the construction and working of H2-O2 fuel cell. | CO3 | 10 |
|  | b. | Write note on any four factors influencing the rate of corrosion. | CO3 | 5 |
|  | c. | Explain galvanic corrosion. | CO3 | 5 |
|  | | **Compulsory**: |  |  |
| 9. | a. | Explain the steps involved in the manufacture of refractories. | CO2 | 10 |
|  | b. | Write note on 1.molybdenum disulphide as lubricant. 2. any four electrical insulators | CO2 | 10 |