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



**UNIVERSITY**

(Karunya Institute of Technology & Sciences)

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

**Supplementary Examination – June– 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. | Discuss softening of hard water by zeolite method with a neat sketch. | CO1 | | 10 |
| b. | What is desalination? Explain the method of desalination of water by reverse osmosis. | CO1 | | 10 |
| (OR) | | | | | |
| 2. | a. | Ellaborate the estimation of hardness in hard water by EDTA method. | CO1 | | 10 |
| b. | Outline the steps involved in purification of water for drinking purpose. | CO1 | | 10 |
| 3. | a. | What is compounding? Mention the role of any five ingredients used in compounding of plastic. | CO2 | | 10 |
|  | b. | Define the following terms: i) Polymer ii) Degree of polymerization. Tabulate the differences between thermoplastics and thermosetting plastics. | CO2 | | 4+6 |
| (OR) | | | | | |
| 4. | a. | Explain the preparation, properties and uses of polyvinylchloride. | CO2 | | 2+8 |
|  | b. | Summarize the drawbacks of raw rubber and define the process of vulcanization of rubber. | CO2 | | 7+3 |
| 5. | a. | Describe the steps involved in proximate analysis of coal. Point out the significance. | CO2 | | 10 |
|  | b. | How is biogas manufactured? List the advantages. | CO2 | | 10 |
| (OR) | | | | | |
| 6. | a. | How flue gas analysis is carried out using Orsat’s apparatus? Give its significance. | CO2 | | 15 |
|  | b. | Calculate gross and net calorific value of a fuel sample having the following composition carbon – 85%, hydrogen – 8%, sulphur – 1%, nitrogen – 2%, ash – 4%, latent heat of steam – 587cal/g. | CO2 | | 5 |
| 7. | a. | Derive Nernst equation for electrode Potential. | CO3 | | 10 |
|  | b. | Construct a H2 - O2  fuel cell and explain the working with a neat diagram. | CO3 | | 10 |
| (OR) | | | | | |
| 8. | a. | Write short notes on i) sacrificial anodic protection method  ii) oxidation corrosion | | CO3 | 5 +5 |
|  | b. | Comment on the factors responsible for corrosion.(any five) | | CO3 | 10 |
|  | | **Compulsory:** | |  |  |
| 9. | a. | Explain the steps involved in the manufacturing process of refractories. | | CO2 | 10 |
|  | b. | What are lubricants? Give two examples. List it’s functions | | CO2 | 10 |

ALL THE BEST