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



**End Semester Examination – Nov/Dec– 2017**

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| **Code :** | **14CH1001** | **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 zeolite process of softening of hard water with a neat diagram. Point out it’s advantages and disadvantages. | CO1 | 12 |
| b. | Write the reactions involved in the estimation of hardness using EDTA method | CO1 | 3 |
| c. | Calculate total, permanent and temporary hardness of a sample water containing  Ca(HCO3)2 = 16.2 mg/l CaCl2 = 22.2mg/l MgSO4 = 24 mg/l | CO1 | 5 |
| (OR) | | | | |
| 2. | a. | Discuss in detail how hard water can be estimated by EDTA method. | CO1 | 12 |
| b. | How Reverse Osmosis is used in desalination of water? | CO1 | 8 |
| 3. | a. | Comment on the ingredients used in compounding of plastics. | CO2 | 10 |
|  | b. | Tabulate the differences between thermoplastics and thermosetting plastics. | CO2 | 5 |
|  | c. | Write a short note on biopolymers. | CO2 | 5 |
| (OR) | | | | |
| 4. | a. | Outline the preparation of polyethylene with reactions. Give its properties and uses. | CO2 | 10 |
|  | b. | Define vulcanization of rubber. Summarize the need for vulcanization of rubber? | CO2 | 10 |
| 5. | a. | Compile the steps used in proximate analysis of coal. What are its significance? | CO3 | 12 |
|  | b. | Compute Gross and Net calorific value of a coal sample containing Carbon-85%, Hydrogen-8%, Sulphur-1%, Nitrogen-2% and ash – 4% | CO3 | 5 |
|  | c. | List any three characteristics of metallurgical coke. | CO3 | 3 |
| (OR) | | | | |
| 6. | a. | Relate flue gas analysis with Orsat method in detail. | CO3 | 12 |
|  | b. | Describe the method of production of biogas with a neat sketch. | CO3 | 8 |
| 7. | a. | Derive Nernst equation for electrode potential. | CO4 | 10 |
|  | b. | Construct Hydrogen - Oxygen fuel cell and explain it’s working with advantages and disadvantages. | CO4 | 10 |
| (OR) | | | | |
| 8. | a. | Summarize any five factors responsible for corrosion. | CO4 | 10 |
|  | b. | Suggest any five methods used to control corrosion. | CO4 | 10 |
|  | | **Compulsory**: |  |  |
| 9. | a. | Prepare an essay with the steps involved in manufacturing process of refractories. | CO5 | 10 |
|  | b. | What are lubricants? Give two examples. List the functions of lubricants. | CO5 | 10 |

ALL THE BEST