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

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

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| **Code :** | **13CH201 / 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. | Discuss softening of hard water by ion exchange 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. | Elaborate 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 |
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| 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 polyethylene. | CO2 | | 2+8 |
| b. | Summarize the drawbacks of raw rubber and define the process of vulcanization of rubber. | CO2 | | 7+3 |
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| 5. | a. | Describe the steps involved in proximate analysis of coal. Write its significance. | CO2 | | 10 |
| b. | How is biogas manufactured? List its 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 its working with a neat diagram. | CO3 | | 10 |
| **(OR)** | | | | | |
| 8. | a. | Write short notes on; i) sacrificial anodic protection method  ii) oxidation corrosion. | | CO3 | 10 |
| 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 and list their functions. | | CO2 | 10 |