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 :** | **16CH1002** | **Duration :** | **3hrs** |
| **Sub. Name :** | **APPLIED CHEMISTRY FOR ENGINEERS** | **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. | Distinguish Covalent and Ionic Bonds with examples. | CO1 | 4 |
| b. | A sample of water is found to contain 40.5 mg/L of Ca(HCO3)2 46.5 mg/L of Mg(HCO3)2 , 27.6 mg/L of MgSO4, 32.1 mg/L of CaSO4 and 22.45 mg/L of CaCl2. Calculate the temporary and permanent hardness of water. (Ca – 40, Mg – 24, S – 32, Cl – 35.5) | CO1 | 6 |
| c. | Illustrate the Zeolite process of softening of hard water with a neat diagram? | CO1 | 10 |
| (OR) | | | | |
| 2. | a. | Generalize the different types of impurities present in water with examples? | CO1 | 6 |
| b. | A sample of water is drawn from Noyyal River, which had the following analytical data: 16.8 mg/L of Mg(HCO3)2, 20 ppm of CaCO3, 24.0 mg/L of MgSO4, 19 mg/L of MgCl2.Calculate the temporary and permanent hardness of water. (Ca – 40, Mg – 24, S – 32, Cl – 35.5) | CO1 | 6 |
| c. | Explain the conversion of sea water to drinking water by the Electrodialysisprocess with a pictorial representation. | CO1 | 8 |
| 3. | a. | List out the moulding constituents of plastics with suitable examples. | CO2 | 8 |
|  | b. | Discuss the synthesis, properties and applications of PVC. | CO2 | 8 |
|  | c. | Biodegradable polymers are useful to mankind. Justify. | CO2 | 4 |
| (OR) | | | | |
| 4. | a. | Discuss the role of polymers in biomedical applications. | CO2 | 6 |
|  | b. | Classify polymers based on their formation and thermal behavior with examples. | CO2 | 6 |
|  | c. | Define a conducting polymer. Explain the types and applications of conducting polymers. | CO2 | 8 |
| 5. | a. | What is Umami taste? Discuss the structure, advantages and disadvantages of monosodium glutamate. | CO1 | 10 |
|  | b. | Write the various components used in the process of Ice cream making. | CO1 | 10 |
| (OR) | | | | |
| 6. | a. | Cite any five adulterants in food and identify appropriate methods for their detection. | CO1 | 10 |
|  | b. | Outline the importance of the following.  a)Norepinephrineb) Serotonin | CO1 | 5+5 |
| 7. | a. | Deduce the Nernst’s expression. | CO3 | 10 |
|  | b. | Illustrate the H2-O2 Fuel cell with a neat sketch. | CO3 | 10 |
| (OR) | | | | |
| 8. | a. | Record any five factors influencing corrosion. | CO3 | 10 |
|  | b. | Report a review on Semiconductorwith its types and applications. | CO3 | 10 |
|  | | **Compulsory**: |  |  |
| 9. | a. | Interpret the categorization of nanomaterials with examples. | CO3 | 10 |
|  | b. | Demonstrate the applications of Nanotechnology in any five different fields. | CO3 | 10 |