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 :** | **14EI2020** | **Duration :** | **3hrs** |
| **Sub. Name :** | **INSTRUMENTATION AND CONTROL IN PETROCHEMICAL INDUSTRIES** | **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. | Demonstrate the working of basic distillation equipment. | CO1 | 6 |
| b. | Describe any two schemes of Pressure control in distillation column. | CO2 | 14 |
| (OR) | | | | |
| 2. | a. | Explain the working of the reboiler control by mainintaining boilup rate. | CO2 | 10 |
| b. | List out the various by-products of petroleum refinery process. | CO1 | 4 |
| c. | Describe about the column feed temperature control in detail. | CO2 | 6 |
| 3. | a. | Describe the pressure control in the chemical reactor by throttling the flow of vent gas. | CO2 | 5 |
| b. | Discuss about the cascade temperature control in chemical reactors. | CO2 | 15 |
| (OR) | | | | |
| 4. | a. | Exemplify the functioning of Atmospheric tray dryer. | CO1 | 8 |
| b. | Categorize the various types of water treatments employed to the influent. | CO3 | 2 |
| c. | Exemplify the concept of batch chemical oxidation in the waste water treatment with relevant chemical equations. | CO3 | 10 |
| 5. |  | Explain about the various Instrumentation and controls involved in Steam Heaters. | CO2 | 20 |
| (OR) | | | | |
| 6. | a. | Discuss about the Temperature control in Liquid to Liquid Heat exchanger by using Three way valves. | CO2 | 16 |
|  | b. | Write short notes on the variables of Heat Exchanger and determine its Degrees of freedom. | CO2 | 4 |
| 7. |  | Elaborate the different types of Evaporators in detail with necessary diagrams. | CO1 | 20 |
| (OR) | | | | |
| 8. | a. | Describe the various density measuring methods involved in Evaporators. | CO1 | 8 |
| b. | Explain about the implementation of cascade control scheme in evaporators. | CO2 | 12 |
|  | | **Compulsory:** |  |  |
| 9. | a. | Illustrate the working of any two continuous Dryers with neat diagrams. | CO1 | 10 |
| b. | Discuss the concept of Chemical Reduction in the waste water treatment. | CO3 | 10 |

ALL THE BEST