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 :** | **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. |  | With the necessary diagrams, explain the different schemes of Pressure control in distillation column. | CO2 | 20 |
| (OR) | | | | |
| 2. | a. | Illustrate the working of basic distillation equipment. | CO1 | 8 |
| b. | Sketch the P&ID symbols of pneumatic line and process liquid. | CO1 | 2 |
| c. | Explain the working of thermosyphon type reboiler control. | CO2 | 10 |
| 3. |  | Describe the different temperature control schemes involved in the chemical reactor. | CO2 | 20 |
| (OR) | | | | |
| 4. | a. | Classify the various types of water treatments employed to the influent. | CO3 | 2 |
| b. | Exemplify the concept of continuous chemical oxidation in the waste water treatment with relevant chemical equations. | CO3 | 18 |
| 5. | a. | Explain about the various Instrumentation and controls involved in Liquid-to-Liquid Heat exchanger. | CO2 | 18 |
| b. | Define Degrees of freedom. | CO2 | 2 |
| (OR) | | | | |
| 6. | a. | Elaborate the different types of control implicated in condenser. | CO2 | 14 |
| b. | Explain any two control schemes involved in steam heater. | CO2 | 6 |
| 7. | a. | Distinguish between Single Effect & Multiple Effect Evaporators. | CO1 | 5 |
| b. | Explain the working of any three types of Evaporators. | CO1 | 15 |
| (OR) | | | | |
| 8. | a. | Demonstrate the measurement and control of absolute pressure in an evaporator. | CO1 | 10 |
| b. | Explain about the implementation of feedback control scheme in evaporators. | CO2 | 10 |
|  | | **Compulsory**: |  |  |
| 9. | a. | Illustrate the working of Continuous Fluid bed and Spray Dryers with necessary diagrams. | CO1 | 16 |
| b. | Discuss the need of Chemical Reduction in the waste water treatment. | CO3 | 4 |

ALL THE BEST