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



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

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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. | Illustrate the contruction and working of distillation equipment. | CO1 | 10 |
| b. | Describe the instrumentation and control involved in reboilers. | CO1 | 10 |
| **(OR)** | | | | |
| 2. | a. | Explain the various control strategies involved in pressure control of distillation column. | CO2 | 16 |
| b. | Write short notes on P&ID diagram. | CO1 | 4 |
|  |  |  |  |  |
| 3. | a. | Demonstrate the working of reactor pressure control by throttling the flow of vent gas. | CO2 | 10 |
| b. | Describe the working of cascade temperature control in chemical reactor with heating and cooling capability. | CO2 | 10 |
| **(OR)** | | | | |
| 4. |  | Elaborate the working of various types of continuous dryers. | CO1 | 20 |
|  |  |  |  |  |
| 5. |  | Discuss the instrumentation and controls involved in liquid-to-liquid heat exchanger. | CO2 | 20 |
| **(OR)** | | | | |
| 6. | a. | Sketch the P&ID diagram of heat exchanger and mention its variables. | CO1 | 5 |
| b. | Describe the instrumentation and controls involved in condensers. | CO2 | 15 |
|  |  |  |  |  |
| 7. | a. | Describe the feedback control of evaporators with a neat sketch. | CO2 | 12 |
| b. | Mention various density measuring devices. | CO1 | 3 |
| c. | Explain the working of multiple effect evaporators. | CO1 | 5 |
| **(OR)** | | | | |
| 8. | a. | Classify evaporators and explain any three types in detail. | CO1 | 12 |
| b. | Explain the working of absolute pressure control of evaporators. | CO2 | 8 |
|  | | **Compulsory**: |  |  |
| 9. | a. | With a neat sketch, describe the contruction and working of batch chemical oxidation process for managing the waste water treatment. | CO3 | 10 |
| b. | Demonstrate the working of acid waste neutralization system in the waste water treatment process. | CO3 | 10 |