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 :** | **14EI3018** | **Duration :** | **3hrs** |
| **Sub. Name :** | **PIPING AND INSTRUMENTATION** | **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. | Explain in detail about the symbols used for process simulation. | CO1 | 10 |
| b. | Summarize the informations available in electrical drawing piping and instrumentation diagram. | CO1 | 10 |
| (OR) | | | | |
| 2. | a. | Illustrate about the analyzing & Succeeding lettersin Piping and Instrumentation Diagram. | CO1 | 10 |
| b. | Discuss in detail about the process and utility streams in process flow diagram. | CO1 | 10 |
| 3. | a. | Draw the P &ID symbols for the following.  (i) Instrument function element.  (ii) Primary element symbols.  (iii) Self actuated symbols. | CO1 | 15 |
|  | b. | Sketch P& ID for temperature Process using Feedback and Feedforward Schemes. | CO1 | 5 |
| (OR) | | | | |
| 4. | a. | Describe in detail about the different types of flow sheets. | CO1 | 10 |
|  | b. | Explain about the Plot plan for a chemical process industry. | CO2 | 10 |
| 5. | a. | Design & develop the Process Flow Diagram for Benzene process. | CO1 | 10 |
|  | b. | Draw & Explain the flowchart for chemical process simulation. | CO1 | 10 |
| (OR) | | | | |
| 6. |  | Reviewing this diagram and answers the following questions.   1. What tag number convention is shown in this example? 2. Do the valves have digital positioners? 3. What type of valve is being used to regulate flow? 4. Is the plant operator able to access the control functions indicated by AC103, AC104, FC101, and FC105? 5. Can the operator access flow measurements FT101, FT102, and FT105, as well as analytic (pH) measurements AT103 and AT104? 6. Are any on-off (blocking) valves used in this process? 7. What is the purpose of the function shown between AT103 and AC103, that is, AY103? 8. Is the pump fixed speed or variable speed? 9. How could the liquid in the vessel be heated? 10. How is the pH of the incoming stream adjusted? | CO2 | 20 |
| 7. | a. | Explain in detail about the types, selection and materials for heat exchanger in P & I Diagram. | CO3 | 10 |
|  | b. | Briefly discuss the general drafting rules in P & I Diagram. | CO3 | 10 |
| (OR) | | | | |
| 8. | a. | Write the uses of fault finding and error handling. | CO3 | 6 |
|  | b. | Write the rules to be followed in the selection of line widths, title block and connections involved in representing a P & I Diagram. | CO3 | 14 |
|  | | **Compulsory**: |  |  |
| 9. | a. | Summarize the minimum information to be shown on the P & ID flowheet for indicating the various equipments used in representing a process. | CO3 | 10 |
|  | b. | Construct the basic distillation column control using P & ID. | CO3 | 10 |

ALL THE BEST