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8E4096

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B.Tech. VIII Semester (Main/Back) Examination, April/May 2016

Electronics Instrumentation & Control

8EI1(O) Instrumentation in Industries

Common in 8EI1 & 8AI1

Time : 3 Hours

Maximum Marks : 80

Min. Passing Marks : 24

Instructions to Candidates:

Attempt any five questions, selecting one question from each unit. All questions carry equal marks. (Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly)

Units of quantities used/calculated must be stated clearly

Unit - I

1. a) Explain the use of specialized process plant instrumentation in overcoming the effects of corrosive nature of materials and hazardous environment. (8)
- b) Draw and explain the man power distribution curve for process industries. (8)

OR

1. a) Why power plant training is useful for instrumentation engineer. Discuss about the major areas of power plant training for process industries. (8)
- b) What are the basic considerations for design the control room for the process industries. Discuss about the system architecture for manufacturing automation (consider any process plant) (8)

Unit - II

2. a) Explain the control schemes of reactor temperature control with recirculation (8)
- b) Explain the control loop of cascade temperature control with heating & cooling capability of chemical reaction (8)

OR

2. a) Draw and explain the control and instrumentation of reactor pressure control by throttling flow of vent gas. (8)
- b) Explain the control schemes of reactor pressure control by modulating gas make up. (8)

Unit - III

3. a) Explain the control loop of steam trap replaced by level control of heat exchangers (8)
b) Draw and explain the C&I of temperature-flow cascade control loop on steam reboiler. (8)

OR

3. a) Explain the control schemes of hot gas by pass control of heat exchanger (8)
b) Draw and explain the C&I of condenser on pressure control of heat exchanger. (8)

Unit - IV

4. a) Explain the principles and classification of dryers with neat sketches (8)
b) Explain the control and instrumentation scheme of short tube vertical evaporators (8)

OR

4. a) Draw and explain the C&I of centrifugal pumps with applications (8)
b) Write short notes on the batch and continuous dryers (8)

Unit - V

5. a) What are the selection criteria of instrumentation for steam power plants. Explain the various control techniques are implemented in steam power plants (8)
b) Draw and explain the C&I of feed water control systems (8)

OR

5. Write short notes on the following
a) Data logging & computing equipments (8)
b) Auxiliary control systems in power plants (8)
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