

COLLEGE OF ENGINEERING, PUNE-5
(An Autonomous Institute of Govt. of Maharashtra)
END SEMESTER EXAM
(IE 401) Process Instrumentation

Programme: Final year Instrumentation & Control
Year: 2012-13 Semester VII
Duration: 3 hr. Max. Marks: 50

Instructions:

1. Figures to right indicate full marks
2. All questions are compulsory

- Q.1 A Compare the proportional control of pure dead time verses pure capacity. 5
- B Describe Level control in surge tank. 5
- Q.2 A It is desire to ensure the efficient burning of fuel in the furnace area. Suggest a solution and elaborate the same with the help of neat diagram. 4
- B Write a note on Non Interacting Controller 3
- C A proportional controller is used to control the height of water in a tank where the water level can vary from 0 to 9 m. What proportional band and transfer function will be required if the required height of the water is 5m and the controller fully closes a valve when the water rises to 5.5 and fully open it when the water falls to 4.5m. 3
- Q.3 A What is the "Surge" Phenomenon in compressors? Explain the use of bypass valve to prevent it. 4
- B Explain mathematically material balance in distillation column. 3
- C Define: 3
- 1) Approach
 - 2) Freeze Dryer
 - 3) Initial Heat-up
- Q.4 A It is desired to automate "Water treatment plant". Explain in 7

chronological order the steps and process data requirements to implement automation. Suggest appropriate automation strategy with neat sketch.

- B Suggest appropriate control strategy which control simple and small refrigeration unit with the help of neat diagram. 3
- Q.5 A It is require to control the flow of the viscous oil in a plant. What are the points that you will consider while selecting appropriate valve and actuator for given application. 7
- B How will you test the capacity of the control valve? 3

****Best of Luck****