Code: R7 311306

R7

B.Tech III Year I Semester (R07) Supplementary Examinations, May 2012

PROCESS CONTROL

(Electronics and Control Engineering)

Time: 3 hours Max Marks: 80

Answer any FIVE questions

All questions carry equal marks

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1 (a) Define degrees of freedom. Obtain the degrees of freedom of a liquid-to-liquid heat exchanger.

(b) Explain the self-regulation process with an example.

2 (a) Discuss the relative advantages and disadvantages of various composite control modes.

(b) Discuss about two-position control and single-speed floating control.

3 (a) Explain the operation of any one method of pneumatic transmission with closed loop. What are the advantages of pneumatic transmission?

(b) Write short notes on: (i) Pirani gauge. (ii) Thermistor.

4 (a) Explain the operation of displacement type pneumatic PI controller with neat sketch.

(b) Explain the principle of operation of hydraulic PID controller.

5 (a) What is ratio control system? Discuss ratio control system with a specific process.

(b) Explain with an example the need of signal conditioning system in the final control operation.

6 Write short notes on:

(a) Heat exchangers.

(b) Super heat steam temperature control.

7 What are the different factors can be considered to improve conversion in the chemical reactors?

8 With suitable diagrams explain the operations involved in nuclear power plant.

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