Reg. No. : | | | | | | | | | | |

Question Paper Code: 35504

B.E. / B.Tech. DEGREE EXAMINATION, DEC 2020

Fifth Semester

Electronics and Instrumentation Engineering

01UEI504 – PROCESS CONTROL INSTRUMENTATION

(Regulation 2013)

Duration: One hour Maximum: 30 Marks

PART A - (6 x 1 = 6 Marks)

(Answer any six of the following questions)

1. The variable used to maintain the controlled variable at its set point is called

   (a) controlled variable (b) manipulated variable

   (c) set point variable (d) process variable

2. Dead time is also called

   (a) pure delay (b) transport lag
   (c) distance-velocity lag (d) all of the above

3. A controller is used to

   (a) reduce the error by generating a correction signal to the final control element
   (b) eliminate the disturbance by generating a correction signal to the final control element
   (c) both (a) and (b)
   (d) none of these

4. The PI controller can be used in _____ control.

   (a) flow (b) temperature (c) liquid level (d) multi-capacity process

5. To suppress errors that persist for long times, the _____ criterion will tune the controllers better.

(a) ISE (b) IAE (c) ITAE (d) one quarter decay ratio

6. The _____ is reasonable trade off between fast rise time and reasonable setting time.

(a) ISE (b) IAE (c) ITAE (d) one quarter decay ratio

7. In boiler drum, swell effect occurs due to

(a) sudden load (steam demand) increase
(b) sudden load (steam demand) decrease
(c) feed water pressure variations
(d) level variations

8. Three element control means

(a) feedback (b) feedback + feedforward
(c) cascade (d) feedforward+cascade

9. The objective of which of the following is to maintain the ratio of two process variables as a specified value.

(a) feed forward control (b) cascade control
(c) ratio control (d) inferential control

10. In which control loop, output of the controller is divided and sent to two or more control valves

(a) inferential control (b) feed forward control
(c) ratio control (d) split range control

PART – B (3 x 8= 24 Marks)

(Answer any three of the following questions)

11. Compare continuous process and batch process. Explain with an example. (8)

12. Illustrate the operation of electronic PID controller. (8)

13. Discuss the operation of process reaction curve method for P, PI and PID controllers. (8)

14. Draw the diagram for current to pressure converter and discuss its operation. (8)

15. With suitable example explain the concept of cascade control. (8)