Class Test No. 07 Friday 06th Sep 2019 Duration: 10 Minutes Closed notes

Name: _____ Roll No. _____

Choose only one option which is the most appropriate for questions 1 - 5.

1. Tracking performance is concerned with

(a) system time constant
(b) steady-state value of the output
(c) maximum value of the output
(d) system damped natural frequency

2. The action among these, which results in better tracking is

(a) pure gain > 1
(b) derivative, 's'
(c) integral, '1/s'
(d) pure gain < 1

3. The action among these, which results in better disturbance rejection is

(a) pure gain > 1
(b) derivative, 's'
(c) integral, '1/s'
(d) pure gain < 1

4. Open loop control strategy

(a) ensures stability of unstable plants
(b) measures the current state of the output
(c) does not require re-calibration
(d) is simple to design and implement

5. Closed loop control strategy generally

(a) requires re-calibration
(b) results in lesser error in output
(c) has no impact on system stability
(d) cannot meet the requirements exactly

Give short (1 - 2 lines) answer to the questions 6-10

6. What is the difference between the concepts of tracking and disturbance rejection?

While tracking involves making output equal to reference input, disturbance rejection involves making output zero for a finite disturbance.

..... 2 (PTO)

7. List main parameters of interest for the disturbance rejection task.

The main parameters are; Departures and Settling time

8. Define feedback control structure.

Feedback control structure feeds back the current output and generates the error signal which is then given as input to the plant.

9. In what situations can we employ the feed-forward action?

We can employ the feed forward control structure when we have knowledge about the nature of disturbance.

10. What is the form of the error signal E(s) for unity and non-unity feedback structures in terms of R(s), C(s), G(s) and H(s)?

$$E_{Unity}(s) = R(s) - C(s); \quad E_{Non-unity}(s) = R(s) - H(s)C(s)$$