Total No. of Questions :8] *[Total No. of Printed Pages :3*

Roll No .....

EC-228

B.E. IV Semester

Examination, June 2017

Choice Based Credit System (CBCS)

Control Systems

Time : Three Hours

Maximum Marks: 60

Note: i) Attempt any five questions out of eight questions.

ii) All questions carry equal marks.

iii) Assume suitable data, if required.

1. a) Write down the advantages and disadvantages of transfer function approach.

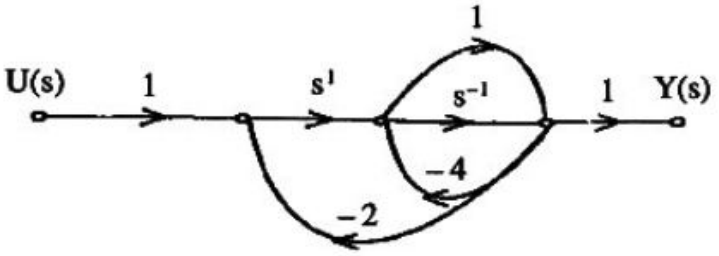
   b) Briefly describe the classification of control system.

2. a) Explain the concept of open loop and close loop systems. Also explain the effect of feedback on control system.

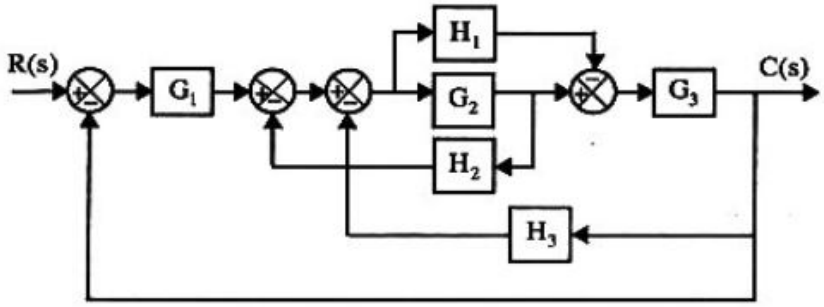
   b) Write a short note on Manson's Gain Formula which is used for solving signal flow graph.

3

3. a) The signal flow graph for a system is given below. Find the transfer function $\frac{Y(s)}{U(s)}$.



   b) Determine $\frac{C(s)}{R(s)}$ by reducing the block diagram for the system given below.



4. a) Write a short note on Steady state error.

   b) Explain the concept of Relative Stability and Absolute Stability.

5. a) Write a short note on standard test signals for analyzing the time response of any control system.

   b) Write a short note on the advantages of Bode plot.

6. a) The limitation of root locus analysis is over come by Bode plot, this sentence is true or false, explain in details.

   b) Draw the Nyquist plot for

$$G(s)\cdot H(s)=\frac{1}{S^2(1+ST_1)(1+ST_2)}$$

   and make a comment on stability.

7. a) Write a short note on Compensation Networks.

   b) Write down the advantages of phase lead-lag compensation network.

8. Write short notes on (any four):

   a) PID compensation

   b) Transfer Matrix

   c) Minimum phase systems

   d) Laplace transform

   e) Signal Flow graph techniques

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