

Enrollment no:

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LDRP INSTITUTE OF TECHNOLOGY AND RESEARCH GANDHINAGAR
DEPARTMENT OF ELECTRONICS AND COMMUNICATION
B.E. 4th SEMESTER
MID SEMESTER EXAMINATION FEBRUARY-2015

Subject Code: EC-402

Branch: EC

Subject Name: Control System

Total Marks: 30

Date: 28/02/2015

Time: 10.00 AM to 11.30 AM

Instructions:-All questions are compulsory.

-Figures to the right indicate full marks.

-Make suitable assumption, wherever necessary.

Que.1 Answer the followings.

- (A) Define control system. List out the difference between open loop and close loop control system. (03)
- (B) Write down the definitions of Damping Ratio and Natural frequency of oscillation. (03)

Que.2 Answer the following questions.

- (A) Find single block equivalent using block diagram reduction techniques. (06)
- (B) Find the transfer function with reference to figure. (06)

OR

- (A) Explain block diagram reduction techniques. (06)
- (B) Consider 4th order system with characteristic equation.
 $S^4 + 8S^3 + 18S^2 + 16S + 5 = 0$. Find stability. (06)

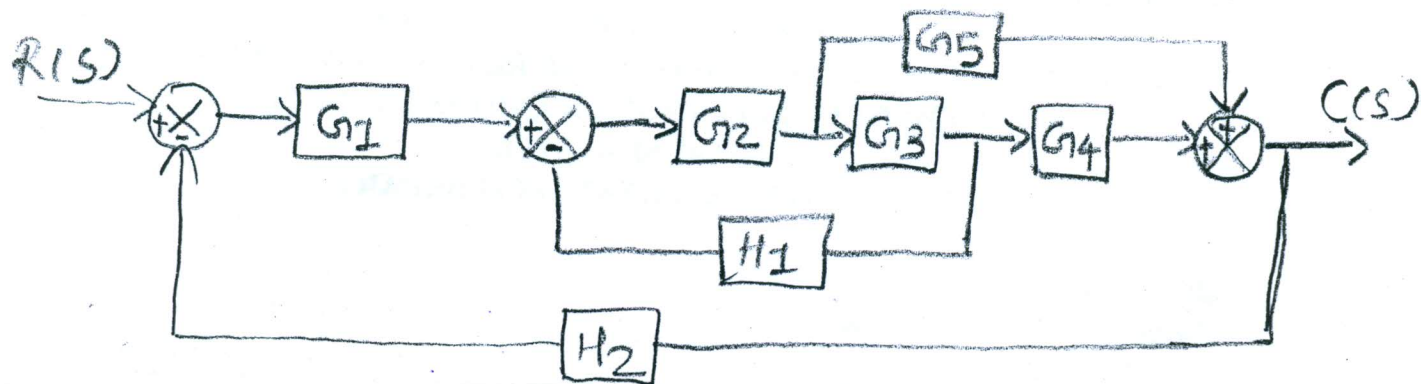
Que.3 Answer the following questions.

- (A) For the mechanical system shown in figure (06)
- (1) Draw the mechanical network
- (2) Write the differential equations of performance.
- (3) Draw the force voltage and force current analogous networks.
- (B) Find out the derivation of steady state error (e_{ss}). (06)

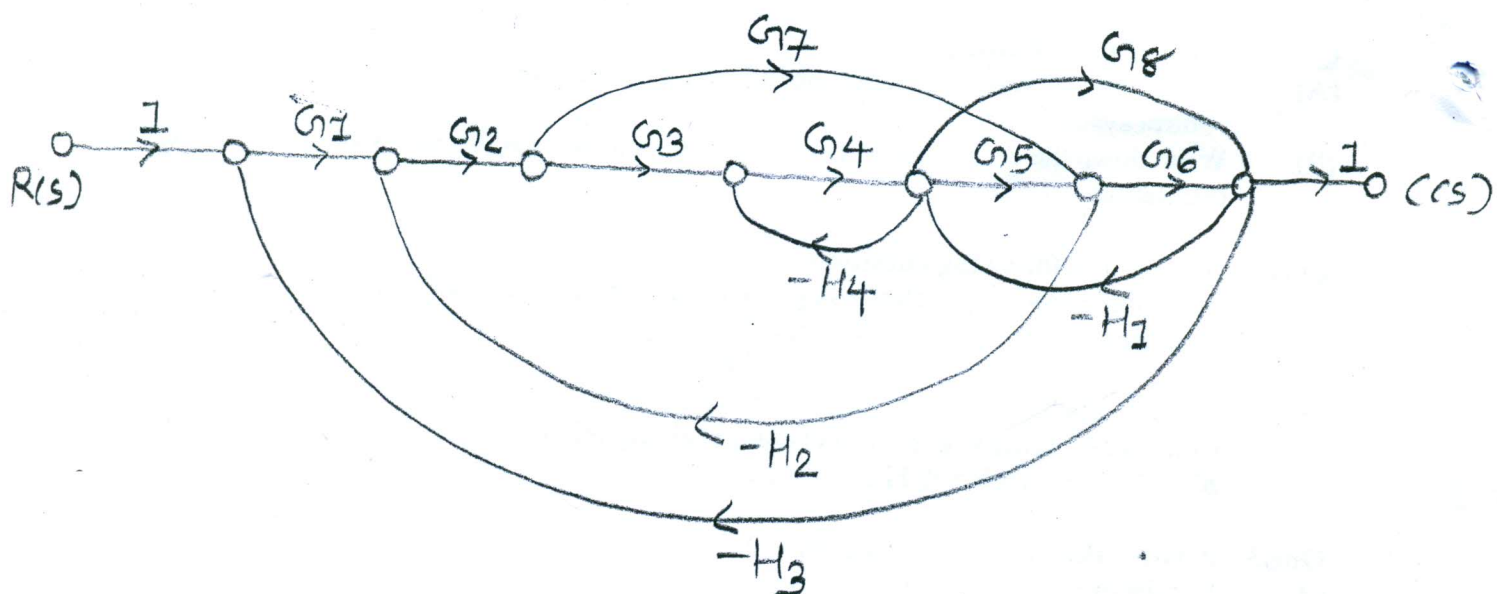
OR

- (A) Write down a short note about Gear Trains. (06)
- (B) Explain the definition of Rise Time and derived its equation. (06)

Q:2 (A)



Q:2 (B)



Q:3 (A)

