Total No. of Printed Pages:2

SUBJECT CODE NO:- P-65
FACULTY OF ENGINEERING AND TECHNOLOGY
B.E.(MECH) Examination MAY/JUNE-2016
Automatic Control System
(Revised)

[Time:Three Hours] **[Max Marks:80]**

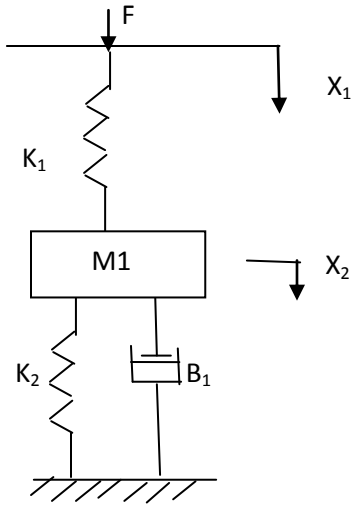
"Please check whether you have got the right question paper."

N.B i) Solve any Three Questions from each Section.
ii) Draw neat Sketches if Required.
iii) Assume suitable data, if necessary.

Section A

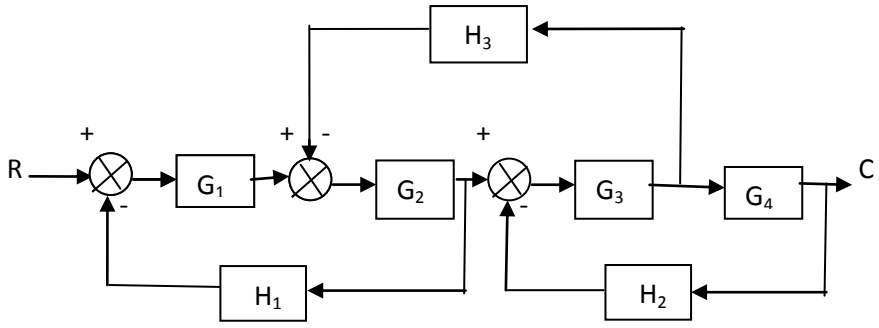
Q.1 a) What is Control System? Differentiate between Manual Vs. Automatic Control System. 07
b) Give in detail Classification of Control System and explain any one Control System. 06

Q.2 a) For the mechanical System as shown in fig. obtain direct analogous electrical ckt. 07



b) Explain in detail Thermal System. 06

Q.3 a) Determine the T.F for the system represented by block diagram as shown in fig. 10



b) Write down advantages and disadvantages of Block diagram. 04

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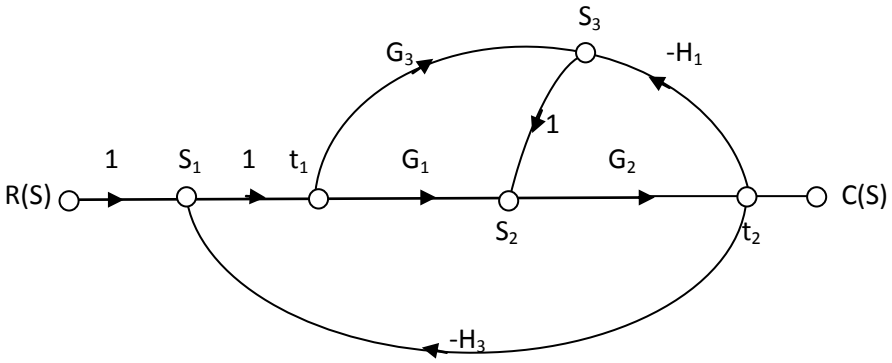
Q.4 a) For the SFG shown in fig. determine the T.F 07



b) Explain ON/OFF Control action. 06

Q.5 a) Explain pneumatic P+I+D controller 07

b) Write a short note on Stepper Motor 06

Section B

Q.6 a) Explain the following Terms: 06
1) Steady state error 2) Stability of a System.

b) Define different time domain specification and show on suitable graph. 07

Q.7 a) Find the time domain specifications for 07
$\frac{C(S)}{R(S)} = \frac{1}{s^2+s+1}$

b) Write a short Note on types of standard input signals. 06

Q.8 a) Explain Nyquist stability criteria. 07

b) A unity feedback control system has 06
$G(s) = \frac{K}{S(S^2+4S+5)(S+2)}$. Determine
Range of K so that system is stable

Q.9 a) Write a Note on Advantages of Bode plots 04

b) Given G(s)=$\frac{40(S+5)}{S(S+10)(S+2)}$ Draw the Bode plot and find the gain & phase margin. 09

Q.10 a) Draw the Root Loci for the following system G(s).H(S)=$\frac{K}{S(S+3)(S+5)}$ 09

b) Write short Note on use of MATLAB Software in control system. 05

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