CMR INSTITUTE OF TECHNOLOGY

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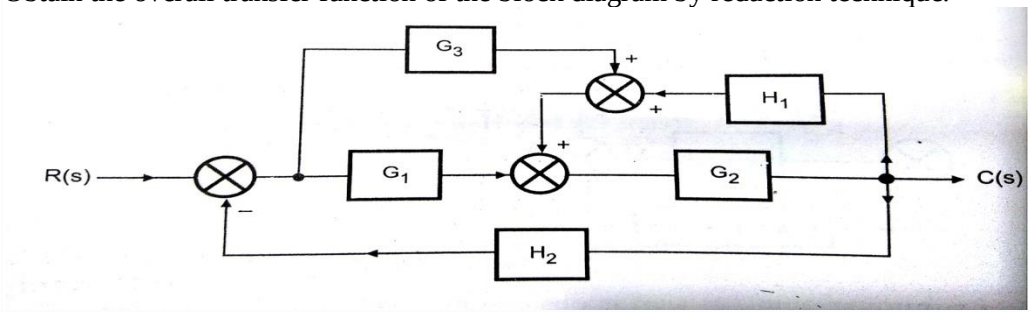
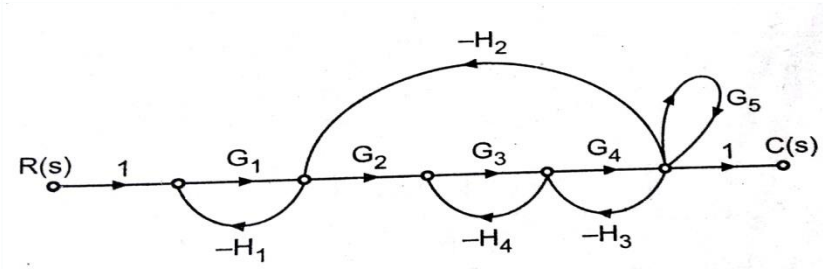
Internal Assesment Test – 2

Sub: Control Engineering				Code: 10ME82
Date: 19/04/2018	Duration: 90 mins	Max Marks: 50	Sem: 8	Branch (sections): ME (A,B)

Answer any ONE question from Part A and TWO questions from Part B. Good luck!

	PART A	Marks	OBE CO	OBE RBT
1	Obtain the overall transfer function of the block diagram by reduction technique. 	[10]	CO2	L3
2	Obtain the overall transfer function by using Mason's gain formula. 	[10]	CO2	L3

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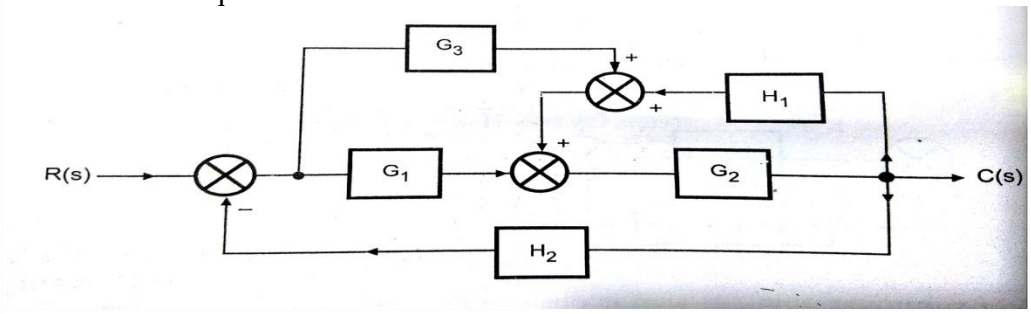
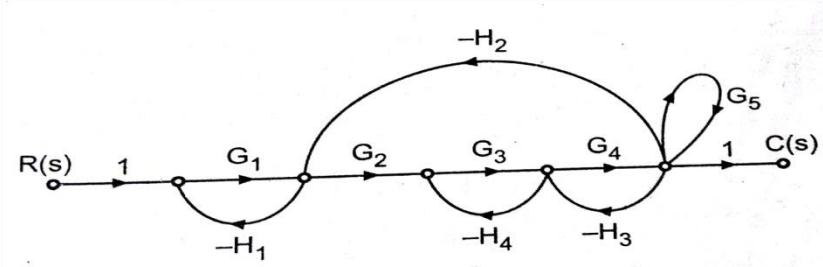
	PART A	Marks	OBE CO	OBE RBT
1	Obtain the overall transfer function of the block diagram shown in fig. 1 by reduction technique. 	[10]	CO2	L3
2	Obtain the overall transfer function by using Mason's gain formula. 	[10]	CO2	L3

PART B

3	The open loop transfer function of a unity feedback system is $G(s) = \frac{K(s+2)}{s(s+4)(s+10)}$ Find K to get PM = +30°	[20]	CO6	L4
4	Sketch the Bode plot for the transfer function $G(s)H(s) = \frac{Ks^2}{(1+0.02s)(1+0.2s)}$ Determine the value of K for the gain cross over frequency to be 5 rad/sec.	[20]	CO6	L4
5	For a certain feedback system $G(s)H(s) = \frac{3(s+1)(s+6)}{s^2(s^2+18s+400)}$. Sketch the Bode plot and comment on G.M, P.M and stability.	[20]	CO6	L4

PART B

3	The open loop transfer function of a unity feedback system is $G(s) = \frac{K(s+2)}{s(s+4)(s+10)}$ Find K to get PM = +30°	[20]	CO6	L4
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