Roll No. ... ...

Total No. of Pages 1
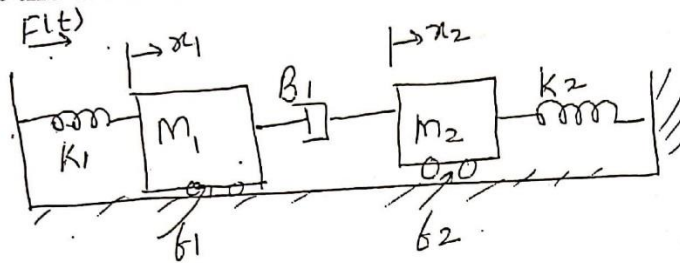
THIRD SEMESTER
SUPPLIMENTARY EXAMINATION

(FEB.-2019)
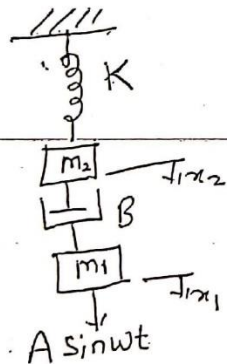
CEE-203- Control Systems

Time: 3:00 Hours

Max. Marks: 40

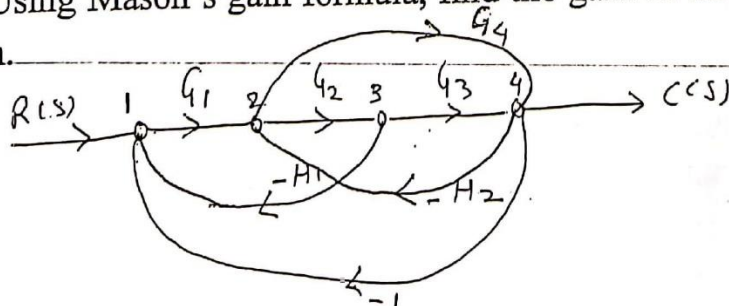All questions carry equal marks. Attempt Any eight questions.

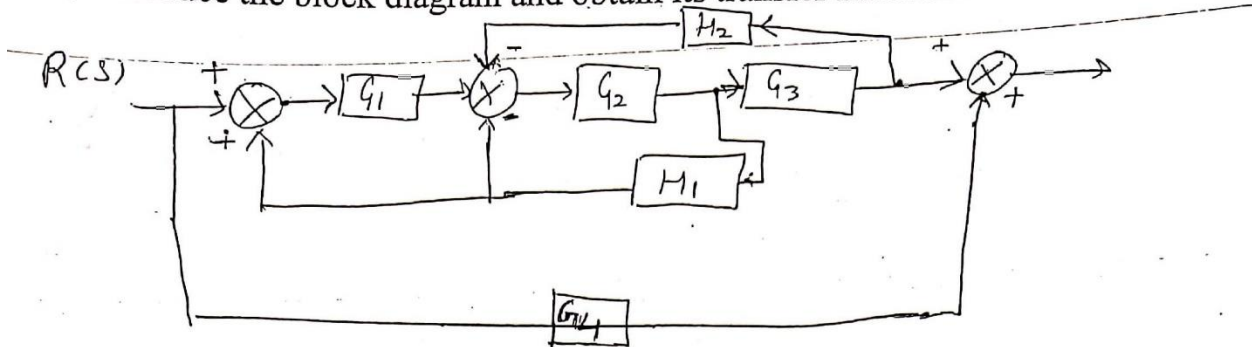Q1. Find the transfer function of the circuit given in figure.

Q2. For a given figure write the equations and draw the F_V analogous.

Q3. Using Mason's gain formula, find the gain of the following signal flow graph.

Q4. Reduce the block diagram and obtain its transfer function.

Q5. Derive the expression for the time response of a second order system subjected to a unit step input for damping ratio less than 1.(ζ <1).

Q6. Consider an unity feedback system with the closed loop transfer function C(s) /R(s)= (ks+b) / (s²+as+b). Determine open loop transfer function. Show that the steady state error in the unit ramp input response is given by

e_{ss} =a-k/b .

Q7. Given the transfer function G(s) = 100/s²+15s+100. Find the peak time, percent overshoot, settling time and rise time.

Q8. For the system characteristic equation is: s³+ks²+s+1=0. Find the value of k and ω for marginal stability.

Q9. Draw the root locus for the system G(s) = k/s(s+5)(s+4). Obtain the value of k for marginal stability.

Q10. For the system having the open loop transfer function G(s)H(s) = 1000/(0.1s+1)(0.001s+1). Determine the stability of the system by plotting the bode plot of the system.