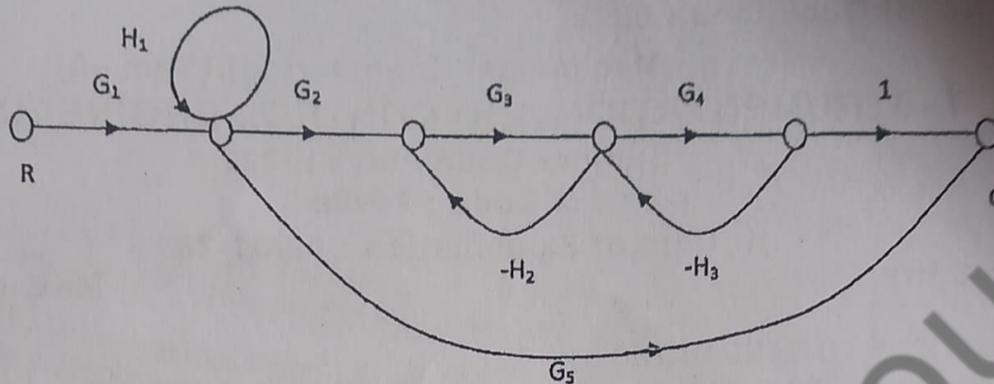
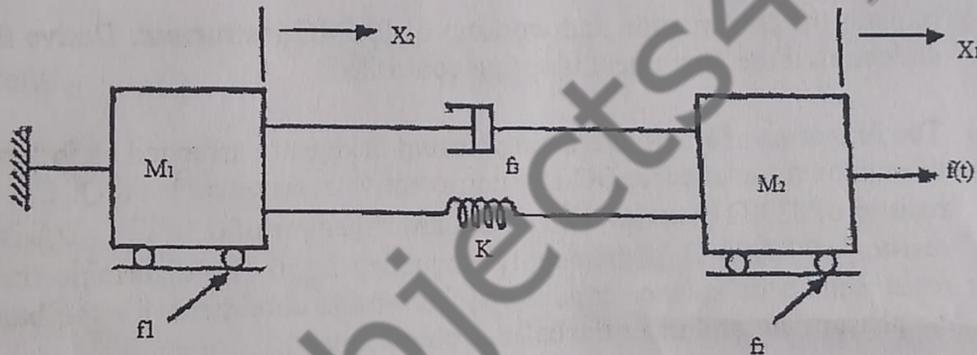


4. a) Determine the transfer function of the Signal Flow Graph shown below :



- b) On the basis of force current analogy write the equations and find $F(s)/X_1(s)$ & $F(s)/X_2(s)$ for the system given below



5. The open-loop transfer function of a unity feedback system is $G(s) = \frac{4}{s(s+1)}$. Determine the nature response of the closed loop system for a unit step input. Also determine the rise time, peak time, peak overshoot and settling time.

6. Explain

- i) Magnetic amplifier
- ii) AC and DC techno-generators

7. a) Using Nyquist Criterion investigate the closed loop stability of the system whose open loop transfer function is given by $G(s)H(s) = \frac{K}{s(sT_1+i)(sT_2+1)}$

- b) Construct the Bode plot of the system whose open loop transfer function is given by

$$G(s)H(s) = \frac{4}{s(1+0.5s)(1+0.08s)}$$

8. Discuss

- i) Anderson's and Schering bridge
- ii) Routh -Hurwitz criterion with examples of each case

NOTE : Disclosure of Identity by writing Mobile No. or Marking of passing request on any paper of Answer Sheet will lead to UMC against the Student.