

- temperature Θ_o is given; write transfer function of the system. 07
- (b) Explain linearization of non linear mathematical models. 07
- OR**
- Q.4 (a) Write a transfer function of simple liquid level pressure difference system. 07
- Q.4 (b) Tabulate the analogous quantities of mechanical and electrical systems using (a) force voltage analogy and (b) force current analogy. 07
- Q.5 (a) Explain root locus construction rules. 07
- Q.5 (b) Consider the characteristic equation of a system: 07
- $$s^4 + s^3 + 2s^2 + 2s + 3 = 0,$$
- What is the status of the stability of the systems?
- OR**
- Q.5 (a) A transfer function of a unity feedback system is 07
- $$G(s) = K/(s(s+5)).$$
- Draw the root locus plot and determine the value of K for a damping ratio of 0.707.
- (b) Consider the characteristic equation of a system: 07
- $$S^5 + 4s^4 + 8s^3 + 8s^2 + 7s + 4 = 0$$
- Find the status of its stability.
