

Q1. A control system having open loop transfer function, $OLTF = \frac{A}{(s+1)\left(\frac{s}{2}+1\right)\left(\frac{s}{4}+1\right)}$.

- (i) For $A = 15$ Draw the Nyquist plot and comment on stability of the system.
- (ii) For what values of 'A' the system is stable and relatively stable. Describe with proper explanation.

Q2. A control system having open loop transfer function, $OLTF = \frac{1}{s(s+1)(s+2)}$.

- (i) Find gain cross over frequency and phase cross over frequency.
- (ii) Find the gain margin and phase margin for the system.
- (iii) Comment on relative stability of the system with proper explanation.

Q3. A control system having open loop transfer function, $OLTF = \frac{s+30}{(s+1)(s+2)(s+3)}$.

- (i) Draw the Nyquist plot and comment on stability of the system.
- (ii) Find the gain margin and phase margin for the system.
- (iii) Comment on relative stability of the system with proper explanation.