# S.E.( Instrumentation & Control)

## CONTROL SYSTEMS

### (2019Pattern) (Semester-II)

1. Sketch the root locus of the system with:
   $G(s) = k/s \ (s+4) \ (s+5)$ , $H(s) = 1$.

2. For the system with closed loop transfer
   $G(s) = 4/ \ s^2 + 2s + 4$ Determine resonant peak, resonant frequency, damping factor.

3. Find whether the system is controllable and Observable
   $A = [-2 \ 1 \ 0 - 3 \ 1 \ -3 \ -4 \ -5]$, $B = [0 \ 0 \ 1]$, $C = [0 \ 1 \ 0]$, $D = [0]$

4. Draw and explain block diagram of digital control system.

5. Write short note on Terminologies used in signal flow graph.

6. Draw Bode plot of the system with:
   $G(s) = 50/ \ s \ (s+4) \ (s+40)$

7. 

   Solve the following:
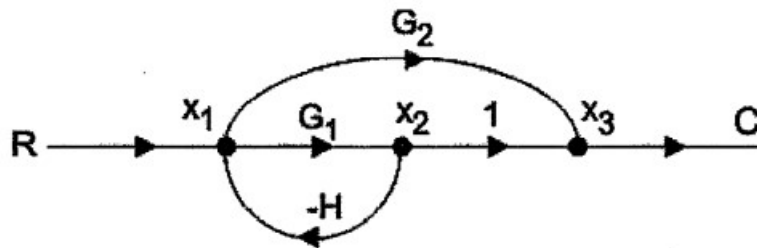
   

8. Explain Frequency domain analysis in brief

9. Write a note on Derivations of time domain specifications.

10. Write a note on Static error constants and steady state error.

11. Explain in brief Root locus.

12. Explain concept of relative stability and its analysis using Routh array.

13. Write short note on Bode plot.