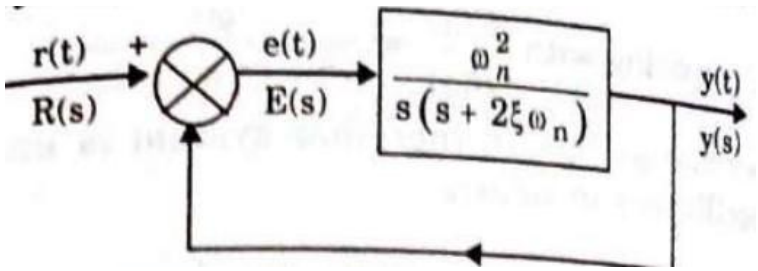
## Unit 2

## ASSIGNMENT

## CONTROL SYSTEM (BEC-302)

1. Write short notes on time domain analysis or time domain analysis with example.
2. What are the different test signals in control system? Explain it.
3. What are the time domain specifications?
   Or
   Write short notes on: (i) delay time (ii) peak time (iii) maximum overshoot (iv) rise time
4. A system has a transfer function C/R=20/(s+10). Determine its unit impulse response.
5. Calculate the step response of a system whose transfer function is H(s) =1/(s+a). Also find the final value of the step response.
6. Determine the response to a unit step input of a unity feedback control system having forward path transfer function as 10/ (1+5s).
7. What is the steady state error? Derive its expression for unit step, ramp, parabolic input signals and also find the value for type 0 and type 1.
8. Consider a negative feedback system having- $G(s) = 1/s^2(s+2)$ and $H(s) = 5(s+1)/(s+5)$. Find the steady state error when this system is subjected to a unit ramp input.
9. Prove that first order system subjected to step input will never have any overshoot.
10. Establish the expression for response of second order system.
11. Derive the expression for peak overshoot, rise time and peak time for second order system for a unit step input.
12. What is damping ratio? Derive its expression for a fig shown below




Fig

13. What do you understand by sensitivity in control system? Explain it.
14. Write short notes on: (i) Pneumatic system (ii) Hydraulic system (iii) Actuators
    Also explain their working with proper diagram.
15. Write short notes on: (i) Proportional controller (ii) Proportional integral(P-I) controller (iii) Proportional derivative (P-D) controller (iv) Proportional integral derivative (P-I-D) controller