

**DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY,
LONERE**

Question Bank

Course: S.Y. B. Tech in Instrumentation Engineering

Sem: IV

Subject Name: Feedback Control System

Subject Code: BTIEC402

Unit-I

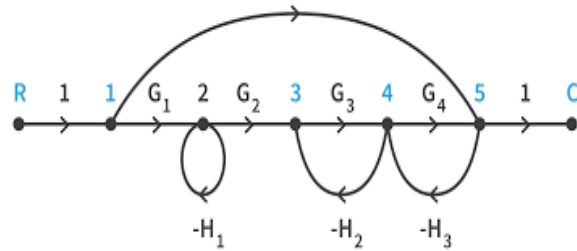
1. Explain open loop and closed loop control system?
2. Explain working of Servomechanism?
3. Explain multivariable control system?
4. Explain Linear and nonlinear system?
5. Explain any one example of control system in non-engineering field?

Unit-II

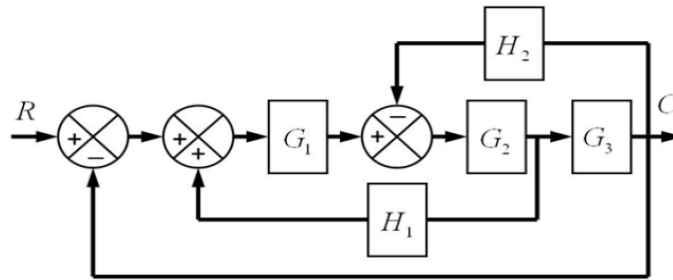
1. Find the transfer function for R-L-C series circuit?
2. What is Transfer Function? Explain procedure to obtain transfer function?
3. Derive the transfer function of DC servomotors with armature control?
4. Derive the transfer function of AC servomotors?
5. Derive the transfer function of amplidyne generator?

Unit-III

1. What is signal flow graph? State and explain Masons Gain formula with suitable example?
2. Explain different Block reduction techniques?
3. Effect of parameter variation in open and closed loop control system?
4. Obtain the transfer function C/R from signal flow graph?



5. Reduce the following by using Block Reduction Technique.



Unit-IV

1. Explain in detail time domain specifications?
2. What is Routh Hurwitz criteria, explain necessary condition Routh Hurwitz stability?
3. Check the stability of following system

$$s^4 + 3s^3 + 3s^2 + 2s + 1 = 0$$

4. Explain different Test Input Signals?
5. Define Steady State Error? What are Static Error Coefficients?

Unit-V

1. Define Root locus? Explain steps of root locus
2. Explain steps for Bode plot?
3. Explain Nyquist Criterion?
4. Write short notes on effect of adding pole and zero on the root locus?
5. Define the terms Gain Margin, Phase Margin, Gain Crossover Frequency, and Phase Crossover Frequency?
6. The forward path transfer function of a unity feedback system is given by

$$G(s) = \frac{K}{s(s + 4)(s + 5)}$$

Sketch the root locus as K varies from zero to infinity?