Bharati Vidyapeeth's College Of Engineering For Women
Department of Electronics & Telecommunication Engineering

CONTROL SYSTEMS

CLASS TEST-I

[2010- 11]

Max. Marks-30 **Time- 1Hrs**

Q.1.A. Define following terms with an example [5]
a. Open loop systems b. Closed loop systems
c. Feed-forward system d. Linear system
e. Non-linear systems

Q.1.B. Find the mathematical model of the system [5]

Q.1.C. Find the transfer function using Mason's gain formula [5]

OR

Q.2.A. Write the short note on Case study of "Antenna position control systems"
[7]

Q.2.B. Find out transfer function using block diagram reduction technique [8]

Q.3.A. Obtain block diagram for following Signal flow graph and find transfer function Using block diagram reduction technique [7]

Q.3.B. An unity feedback system has a loop transfer function [8]

$$G(s) = \frac{10(s+1)}{s(s+2)(s+5)}$$

Find a) Stability gain,
b) Step, ramp, parabolic error coefficients

c) Steady state error when $r(t)=3+10t$

OR

Q.4.A. State the effect of step, ramp and parabolic inputs on steady state error. Derive *Kp, Kv, Ka* [7]

Q.4.B. Unity feedback system has

$$G(s) = \frac{100}{s(s+5)}$$

If it is subjected to unit step input. Find all the time domain specifications.

[8]

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[2011- 12]

Max. Marks-30 **Time- 1Hrs**

Q.1.A. Define the Transfer Function of the system. State the advantages & limitations of transfer function in study of control systems [7-marks]

Q.1.B. Derive the transfer function for the following electrical circuit. [8-marks]

OR

Q.2. A. Differentiate in between [8-marks]
1. Closed loop systems & Open loop systems
2. Feed-back system & Feed-forward system

Q.2.B. Explain with neat diagram and differential equations two mechanical systems with different elements used [7-marks]

Q.3.A. Find the mathematical model of the system with F-I analogy [8-marks]

Q.3.B. Find out transfer function using block diagram reduction technique [7-marks]

OR

Q.4.A. Find out transfer function using block diagram reduction technique [8-marks]

Q.3.A. Find the mathematical model of the system [7-marks]