

Enroll No

K.E.Society's
Rajarambapu Institute of Technology, Rajaramnagar
 (An Empowered Autonomous Institute, affiliated to SUK)
Unit Test -II (2025-26)

Q.P. Code
UT 3184

T.Y. B. Tech.-Electronics & Telecommunication Engineering

Course Code: EC325

Course Name: Control Systems

Day & Date: *Saturday 20/09/2025*

Time: *10:30 To 12:30*

Max Marks- 25

Instructions: 1) All questions are compulsory.

2) Figures in rounded () brackets within the question, indicate the scheme of marking for respective part of the question, whereas, figures in the first right column indicate total marks for that whole question.

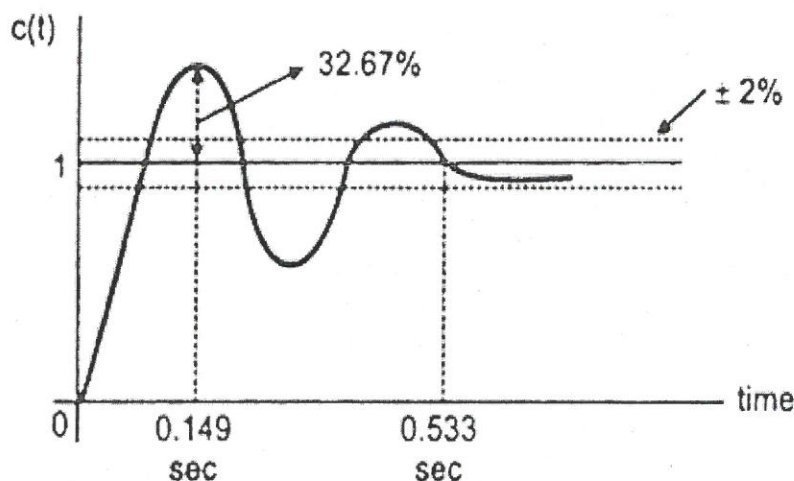
3) CO is the index number of the Course Outcome statement.

4) The Bloom's taxonomy level (BL) for 1,2,3,4,5 and 6 is remember, understand, apply, analyze, evaluate and create respectively.

5) Assume suitable data if necessary.

6) Use of non-programmable calculators is allowed

		Marks	BT Level	COs
Q.1	A	6	3	2
	A unity feedback position control system has an open loop transfer function, $G(s) = \frac{10}{s(s+2)}$ Calculate the rise time, percentage overshoot, peak time and settling time for a step input of 12 units. (2 Marks each)			
	B	6	3	2
	Determine closed loop transfer function of unity feedback system having second order whose step response is shown below. (2 Marks each)			



Q.2 A The open loop transfer function of a unity feedback system is given 7 4 3

by, $G(s) = \frac{K(s+4)}{s(s^2+2s+2)}$ Sketch the root locus of the system

and comment on stability (1 Mark each)

OR

A Sketch root locus for system with open loop transfer function

$G(s).H(s) = \frac{K}{s(s+3)(s^2+3s+4.5)}$ (1 Mark each)

B For a system with characteristic equation 6 4 3

$F(s) = s^6 + 3s^5 + 4s^4 + 6s^3 + 5s^2 + 3s + 2 = 0$

Examine stability of the control system. (2 Mark each).

