



SCHOOL OF ELECTRICAL ENGINEERING
CONTINUOUS ASSESSMENT TEST - I
FALL SEMESTER 2025-2026

Programme Name & Branch	: B.Tech - EEE & ECS	
Course Code and Course Name	: BEEE303L - Control Systems	
Faculty Name	: Dr. V. Bagyaveereswaran	
Class Number	: VL2025260101035	
Date of Examination	: 19/08/2025	
Exam Duration	: 90 minutes	Maximum Marks: 50

General instruction(s):

- Answer All Questions
- Rough work should not be done on question paper. It will be treated as malpractice.
- M - Max mark; CO - Course Outcome; BL - Blooms Taxonomy Level (1 - Remember, 2 - Understand, 3 - Apply, 4 - Analyze, 5 - Evaluate, 6 - Create)

Course Outcomes Statements:**CO. 1: Formulate mathematical models of the physical systems****CO. 2: Analyze the system performance in time and frequency domains**

Q. No.	Question	M	CO	BL
1.	Determine the transfer function $X_3(s)/F(s)$ for the mechanical translational system shown in Fig. 1. Frictionless Fig. 1	10	1	3
2.	Using Mason's gain formula, determine the transfer function for the signal flow graph shown in Fig. 2. Fig. 2	10	1	3



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3.	The block diagram of a control system is shown in Fig. 4. Determine the overall transfer function. Fig. 4	10	1	3
4.	The open loop transfer function of a unity feedback control system is given by $(s) = \frac{25}{s(s+5)}$. Calculate the natural frequency of oscillations, damped frequency of oscillations, damping ratio, rise time, peak time, settling time, maximum overshoot of a unit step input.	10	2	3
5.	a) For a unity feedback system having open loop transfer function as $G(s) = \frac{k(s+2)}{s^2(s^2+7s+12)}$ Determine (i) Type number of the system (ii) Error constants (iii) Steady state error for parabolic input.	5	2	3
	b) Obtain the unit impulse response of a unity feedback system whose open loop transfer function is $G(s) = \frac{2s+1}{s^2}$.	5	2	3
