CONTROL SYSTEM (23EE503)

UNIT WISE QUESTION BANK

UNIT–I

S.No		Questions	BT	CO	PO
Part–A(Short Answer Questions)					
1		What is meant by an industrial control system?	L1	CO1	PO1
2		Define a mathematical model of a physical system.	L1	CO1	PO2
3		What are the basic components of a control system?	L1	CO1	PO1
4		What is a transfer function?	L1	CO1	PO3
5		State the conditions for a system to be Linear Time-Invariant (LTI).	L1	CO1	PO1
6		Differentiate between open-loop and closed-loop control systems.	L1	CO1	PO2
7		List any two advantages of feedback in control systems.	L1	CO1	PO1
8		What is block diagram algebra?	L1	CO1	PO3
9		Define a signal flow graph (SFG).	L1	CO1	PO1
10		What is Mason's Gain Formula and where is it used?	L1	CO1	PO5
Part–B(Long Answer Questions)					
11	a)	Explain the concept of transfer function. Derive the transfer function of a Linear Time	L2	CO1	PO2
	b)	Explain the procedure for reducing a signal flow graph and obtaining the overall system transfer function.	L2	CO1	PO2
12	a)	Derive the transfer function of a closed-loop control system and discuss the significance of feedback.	L2	CO1	PO2
	b)	Explain the rules of block diagram algebra. Illustrate the reduction of a complex block diagram into an equivalent transfer function.	L2	CO1	PO2

13	a)	Explain various industrial control system examples. Discuss their objectives, components, and applications in modern industries.	L2	CO1	PO2
	b)	Describe the procedure for developing mathematical models of physical systems. Illustrate with suitable examples.	L2	CO1	PO2
14	a)	Explain various industrial control system examples. Discuss their objectives, components, and applications in modern industries.	L2	CO1	PO2
	b)	Describe the procedure for developing mathematical models of physical systems. Illustrate with suitable examples.	L2	CO1	PO2
15	a)	Explain the mathematical modeling of mechanical systems (translational and rotational) with neat diagrams and governing equations.	L2	CO1	PO2
	b)	Discuss the modeling of electrical systems and derive the transfer function for a simple RLC circuit.	L2	CO1	PO1