

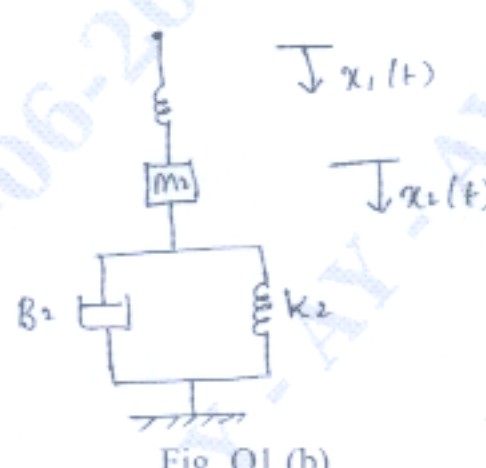
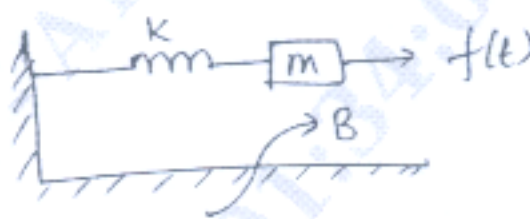
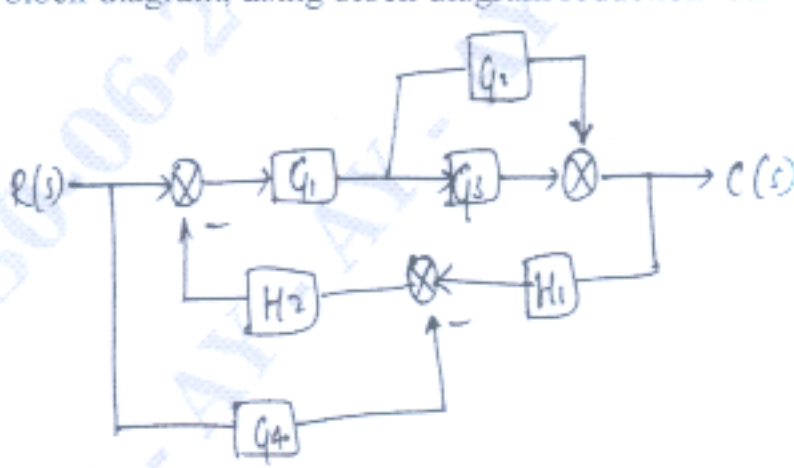
Fifth Semester B.E./B.Tech. Degree Examination, June/July 2025

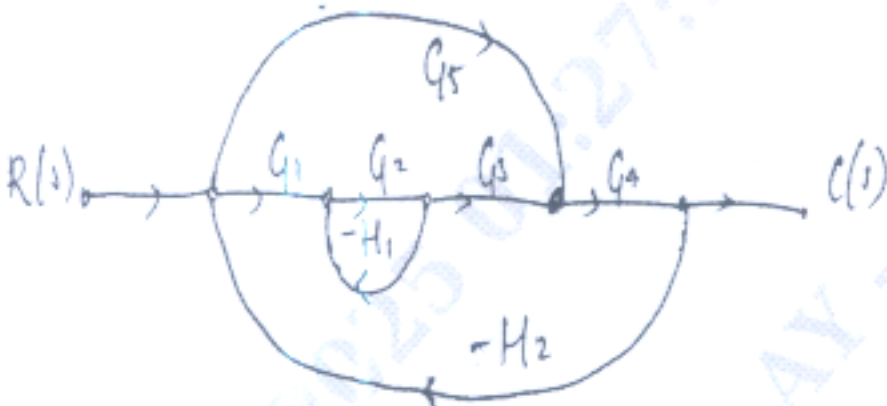
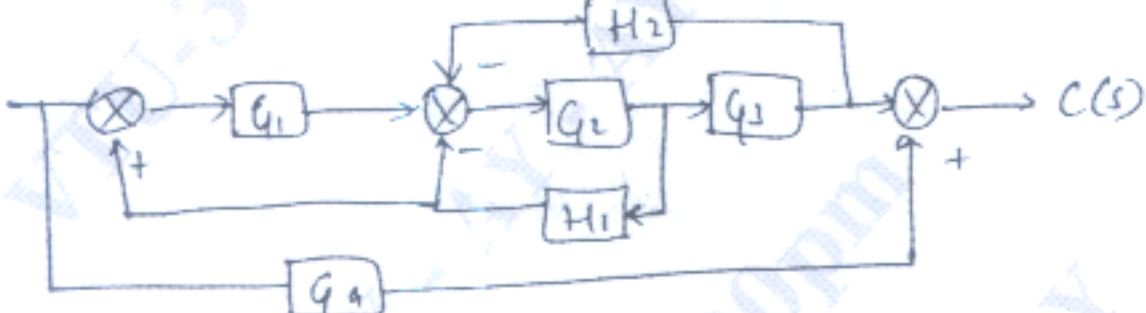
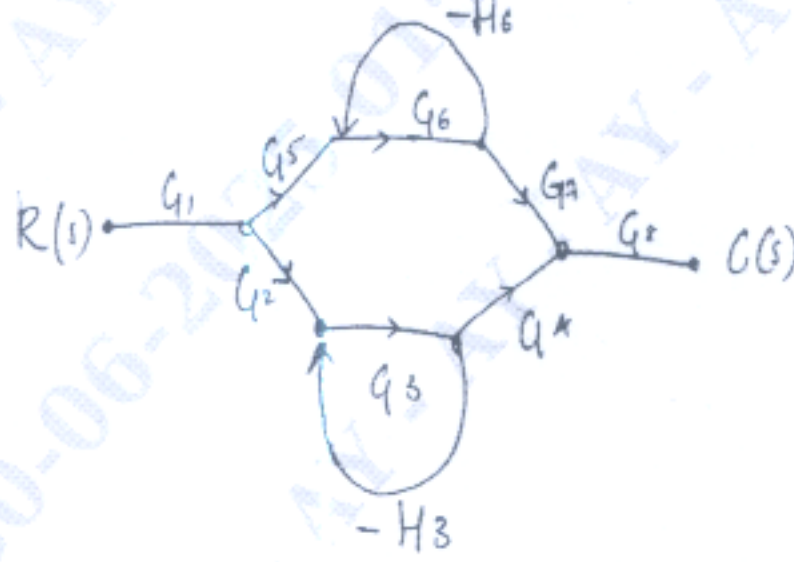
Control Theory and Virtual Instrumentation

Time: 3 hrs.

Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
 3. M : Marks , L: Bloom's level , C: Course outcomes.

Module – 1		M	L	C
Q.1	a. Explain the different types of control system.	10	L2	CO1
	b. Draw the equivalent mechanical system and analogous system based on FU and FI method.	10	L3	CO1
 Fig. Q1 (b)				
OR				
Q.2	a. Draw the equivalent electrical system based on FV and FI analogy.	10	L3	CO1
	 Fig. Q2 (a)			
Q.3	b. Explain the difference between open loop and closed loop control system.	10	L2	CO1
Module – 2				
Q.3	a. Reduce the block diagram, using block diagram reduction technique.	10	L3	CO1
	 Fig. Q3 (a)			

	b.	Find $\frac{C(s)}{R(s)}$ using mason gain formula.	10	L3	CO2
		 Fig. Q3 (b)			
OR					
Q.4	a.	Reduce the block diagram using block diagram reduction technique.	10	L3	CO2
		 Fig. Q4 (a)			
	b.	Find $\frac{C(s)}{R(s)}$ using mason's gain formula,	10	L3	CO2
		 Fig. Q4 (b)			
Module – 3					
Q.5	a.	Explain the difference between graphical programming and textural programming with example.	10	L2	CO2
	b.	Explain the architecture of virtual instruct.	10	L2	CO2

OR					
Q.6	a.	Explain multiplexing of analog signals.	10	L2	CO3
	b.	Explain the signal conditioning functions : (i) Amplification (ii) Isolation (iii) Filtering	10	L2	CO3
Module – 4					
Q.7	a.	Explain the components of LABVIEW.	10	L2	CO3
	b.	Explain formula node and case structure with example.	10	L2	CO3
OR					
Q.8	a.	Explain any 5 string functions.	10	L2	CO4
	b.	Explain FOR loop and WHILE loop working with an example.	10	L2	CO4
Module – 5					
Q.9	a.	Explain RS232, RS488, RS485 in detail.	10	L2	CO4
	b.	Explain ISO-OSI model in detail.	10	L2	CO4
OR					
Q.10	a.	Explain the working of CAN bus and USB configuration.	10	L2	CO4
	b.	Explain MODBUS in detail, with a neat diagram and its functional units.	10	L2	CO4
