

CBCS SCHEME

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BMT503

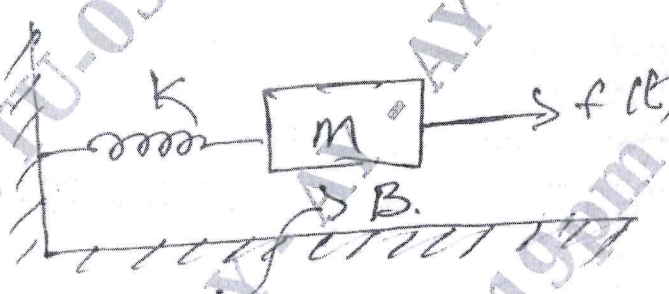
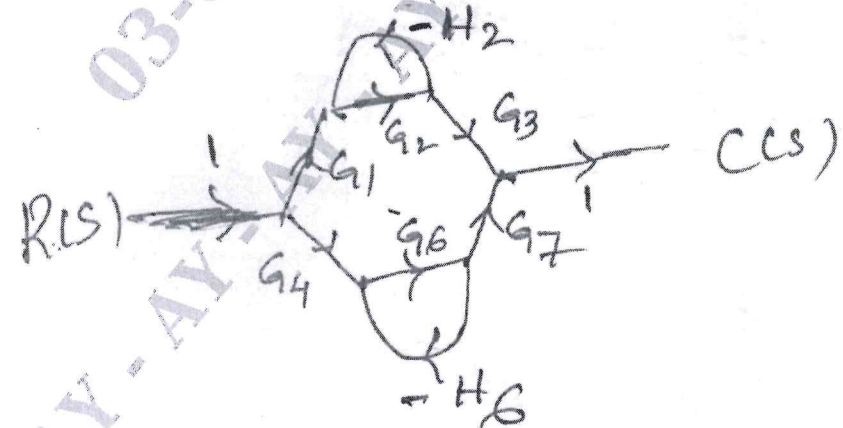


Fifth Semester B.E./B.Tech. Degree Examination, June/July 2026 Control Theory and Virtual Instrumentation

Time: 3 hrs.

Max. Marks: 100

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

Module – 1				M	L	C
Q.1	a.	Explain open loop and closed loop control system with relevant example.		10	L2	CO1
	b.	For the given mechanical system i) Write equivalent mechanical system ii) Write differential equations iii) Draw Analogy circuit for Force to Voltage and Force current analogy.		10	L3	CO1
 Fig. Q. 1(b)						
OR						
Q.2	a.	Define Control Systems and write different types of Control System.		10	L1	CO1
	b.	Explain analogous systems based on Torque voltage analogy for the rotational system.		10	L2	CO1
Module – 2						
Q.3	a.	Write step by step reduction rules in block diagram reduction technique.		10	L2	CO2
	b.	Find the transfer function for the given signal flow diagram.		10	L3	CO2
 Fig. Q. 3 (b)						

OR

Q.4	a.	Explain Mason's gain formula in signal flow graph with example.	10	L2	CO2
	b.	Define the following terms related to signal flow graph i) Loop ii) Non-touching Loop iii) Forward path iv) Non touching Loop gains v) Forward path gain	10	L2	CO2

Module – 3

Q.5	a.	With neat diagram write about the architecture of VI in detail.	10	L3	CO3
	b.	With necessary details write about single ended and differential inputs.	10	L3	CO3

OR

Q.6	a.	With relevant details write about ADC and DAC in detail.	10	L3	CO3
	b.	With necessary details write the differences between graphical and conventional programming.	10	L3	CO3

Module – 4

Q.7	a.	With necessary details write about LABVIEW and advantages of LABVIEW.	10	L3	CO4
	b.	With relevant details write about SUBVI and structures.	10	L3	CO4

OR

Q.8	a.	With necessary details write about array and creating one dimensional and two dimensional array.	10	L3	CO4
	b.	With relevant details write about strings and string functions.	10	L3	CO4

Module – 5

Q.9	a.	Explain with relevant details about USB and need for USB.	10	L2	CO5
	b.	Explain MODBUS protocol in detail.	10	L2	CO5

OR

Q.10	a.	Explain ISO – OSI model for serial bus in detail.	10	L2	CO5
	b.	Explain with relevant details RS422 and RS485.	10	L2	CO5
