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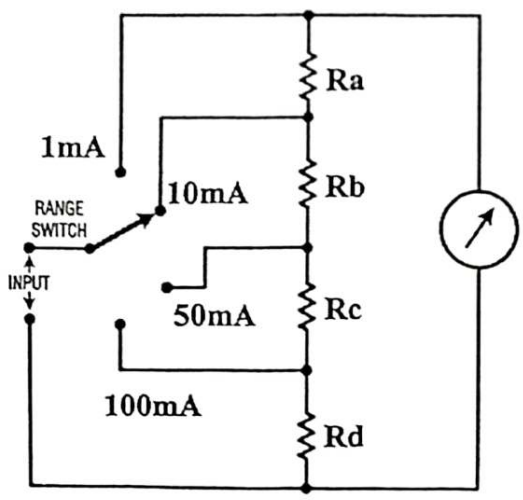
Daffodil International University

Faculty of Science & Information Technology
Department of Computer Science & Engineering
Midterm Examination, Summer 2026
Course Code: CSE 325, Course Title: Instrumentation and Control
Level: 4 Term: 1 Batch: 65

Time: 01:30 Hrs **Marks: 25**

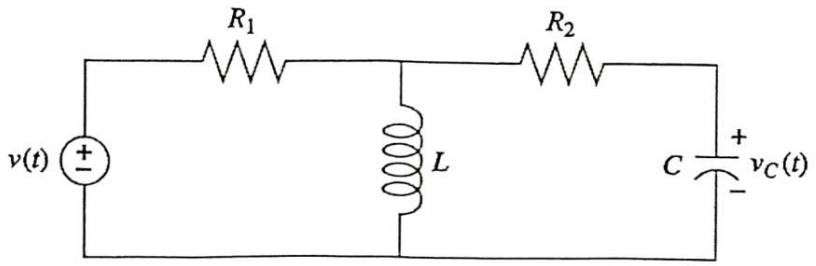
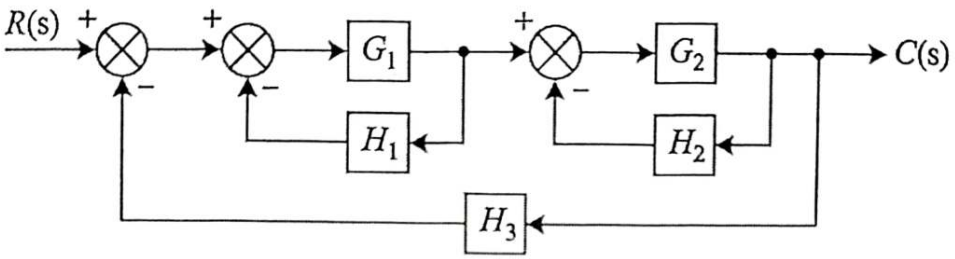
Answer ALL Questions

[The figures in the right margin indicate the full marks and corresponding course outcomes. All portions of each question must be answered sequentially.]

1.	*a)*	Define accuracy and precision with an example.	1	**CO1**
	b)	What is the difference between open loop and close loop control system?	1	
	c)	Recall the significance of shunt resistance in an ammeter?	1	
	d)	Illustrate feedback network in control system.	1	
	e)	State the function of PT.	1	
2.	*a)*	Figure 2(a) shows an Aryton shunt of an ammeter with a current range of 0-1 mA, 0-10 mA, 0-50 mA and 0-100 mA. A PMMC meter movement with an internal resistance of 100 Ω and full-scale current of 50 μA is used. Calculate the value of R_a, R_b, R_c and R_d.  Figure 2(a)	5	**CO2**
	b)	A half-wave rectifier type AC meter using a PMMC movement suffers from two major disadvantages: i) Demonstrate the causes of these disadvantages in a half-wave rectifier AC meter. ii) Demonstrate how an improved rectifier-based AC meter eliminates these disadvantages.	2+3	

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3.	*a)*	For the circuit in Figure 3(a) develop equivalent block diagram.  Figure 3(a)	5	CO3
	b)	Apply block diagram reduction techniques to determine the transfer function of the system shown in Figure 3(b), $T(s) = \frac{C(s)}{R(s)}$.  Figure 3(b)	5	

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