



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 $100\ \Omega$ and full-scale current of $50\ \mu\text{A}$ is used. Calculate the value of R_a , R_b , R_c and R_d .	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	

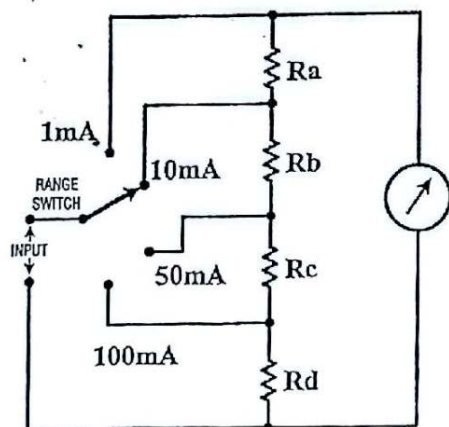


Figure 2(a)

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	i = i2