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Daffodil International University

Faculty of Science & Information Technology
Department of Computer Science & Engineering
Midterm Examination, Fall 2026
Course Code:CSE317 , Course Title: Microprocessor and Microcontroller
Level:3 Term: 1 Batch:67

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.		Describe the evolution of microprocessors from the Intel 8085 to modern processors. Trace the major technological advancements across different generations by comparing their data width, address bus size, clock speed, architectural features. Explain how these developments contributed to improvements in processing power, memory management, performance, and overall computing capability	[5]	CO1
2.	a)	An 8086 processor is executing the instruction: MOV AX, [1200H] The processor has CS = 2000H, IP = 0100H, and DS = 3000H Explain how the 8086 executes this instruction, focusing on CS:IP instruction fetching, DS:offset data addressing, physical address generation, and the roles of the BIU, EU, and prefetch queue. What happens to the queue if the next instruction is a JMP?	[5]	CO2
	b)	(i) Consider the following 8086 instruction: MOV AX, [20501H] Explain how the 8086 accesses memory to execute this instruction. Determine the roles of A_0 and $\overline{BHE}$, identify which memory banks are activated, and state whether the operation requires one or two bus cycles.	[3+2]	
		(ii) Give two differences between INTR and NMI .		
3.	a)	Apply the concept of the addressing modes of the 8086 by giving suitable examples of each. For each addressing mode, explain how the processor determines the operand or effective address. Your answer should include immediate, register indirect, based indexed, and based indexed with displacement addressing modes.	[4]	CO3
	b)	(i) A customer purchases two items costing 800 and 600 units. If the total exceeds 1,000 units, the customer receives a 100 unit discount.Show the total price. Write an 8086 program to calculate the total price.	[3+3]	
		(ii) A student's marks are stored in AL. • If marks ≥ 80H, add 05H bonus and jump to EXCELLENT. • If marks ≥ 50H, add 03H bonus and jump to PASS. • Otherwise, jump to FAIL. You have to take the marks as input and display the message as output. Write the 8086 program		