International Islamic University Chittagong

Department of Electronic and Telecommunication Engineering

B. Sc. Engineering in ETE

Midterm Examination, Spring 2022

Course Code: ETE-3543 Course Title: Microprocessor and Peripherals

Time: 1 hour 30 minutes Full Marks: 30

i) Answer any two questions from the followings. The figures in the right-hand margin indicate fullmarks.

ii)Course Outcomes (COs) and Bloom's Levels are mentioned in additional Columns.

Course Outcomes (COs) of the Questions	
CO1	Gain knowledge of assembly level programming to write and test programs of moderate complexity for a real-time machine.
CO2	Apply knowledge to design circuits for various applications using Microcontrollers.

Bloom's Levels of the Questions						
Letter Symbols	**R**	**U**	**Ap**	**An**	**E**	**C**
Meaning	Remember	Understand	Apply	Analyze	Evaluate	Create

1. a)	Differentiate between microprocessor, microcomputer, and microcontroller. Write the functions of the following pins: i) ALE ii) Reset Out iii) INTA	CO1 CO2	R	2+3
1. b)	What is the difference between ADD and ADC instructions? Explain with examples. Make a short note on: i) Machine Cycle ii) T-state	CO1 CO2	R/ UN	2+3
2. a)	Explain demultiplexing of address and data bus with appropiate figure. Draw the timing diagram of Opcode fetch.	CO1 CO2	U/ R	3+2
2. b)	For each of the following instructions, give the new destination contents and the new settings of CF, SF, ZF, PF and OF. Suppose that flags are initially 0 in each part of this question. i) ADD AL, BL ; AL=0D H and BL=EF H ii) SUB AL, BL; AL=9B H and BL=1A H	CO1	Ap	5
3. a)	Explain the concept of DMAwith appropiate figure. State the control and status signals during different machine cycles.	CO1 CO2	U	3+2
3. b)	Write the steps involved to fetch a byte in 8085. Explain the following instructions with examples i) LDAX ii) INX	CO1	U/ Ap	3+2
4. a)	Write a program to add two 8-bit numbers and store the result and value of carry flag in different memory location. Assume that the last number is the last two digits of your ID. Write a program that has a finite loop with 14 iterations.	CO1	U/ Ap	3+2
4. b)	Define instruction cycle. Find the number of machine cycles, t-state and total	CO1	U/	5

CO2 Ap

execution time for the following instructions

- MVI A, 05H
- MOV A, B