

# International Islamic University Chittagong (IIUC)

## Department of Electronic and Telecommunication Engineering

### Semester End Examination

Program: **B.Sc. (Engg.)**  
 Course Code: **ETE-3543**  
 Total Marks: **50**

Semester: **Autumn 2024**  
 Course Title: **Microprocessor & Peripherals**  
 Time: **2 Hours 30 Minutes**

(i) Answer all the questions. The figures in the right-hand margin indicate full marks. (ii) Course Outcomes (COs) and Bloom's Levels are mentioned in additional Columns.						
<b>Course Outcomes (COs) of the Questions</b>						
<b>CLO1</b>	Gain knowledge of assembly level programming to write and test programs of moderate complexity for a real-time machine.					
<b>CLO2</b>	Apply knowledge to design circuits for various applications using Microcontrollers.					
<b>Bloom's Levels of the Questions</b>						
<b>Letter Symbols</b>	<b>R</b>	<b>U</b>	<b>Ap</b>	<b>An</b>	<b>E</b>	<b>C</b>
<b>Meaning</b>	Remember	Understand	Apply	Analyze	Evaluate	Create

#### Part A

Q1.	a)	Explain the similarities and differences of CALL and RET instructions with PUSH and POP instructions with example.	CLO1	U	5
	b)	Write a program to count from 0 to 9 with one second delay between each count. Assume the clock frequency is 3 MHz	CLO1	Ap	5
<b>OR</b>					
Q1.	a)	Explain three uses of Stacks in 8085 microprocessors. Explain the differences between a JMP instruction and CALL instruction.	CLO1	U	5
	b)	If the 8086 microprocessors "MVI" instruction uses <b>7 T-States</b> , and the microprocessor is running at <b>5 MHz</b> , Now calculate how much time required T-States complete an instruction?	CLO1	Ap	5
Q2.	a)	Explain the execution of a subroutine using an example.	CLO1	Ap	5
	b)	Write an assembly program to find the sum of the first 10 natural numbers.	CLO1	Ap	5
<b>Part B</b>					
Q3.	a)	Define software and hardware interrupt. When microprocessor checks for an interrupt? List the software and hardware interrupt.	CLO1	R	4
	b)	Draw the interrupt architecture and explain how RST 7.5 executes.	CLO1	U	6
Q4.	a)	Write short note on a) TRAP b) RST 7.5	CLO1	R	4

	b)	Explain what SIM is. Develop an assembly language program for 8085 microprocessors to enable RST 5.5 and reset 7.5 interrupt	CLO1	U	6
Q5.	a)	Explain the operation of 8255 PPI Port A programmed as input and Port A programmed as output in Mode 1 with necessary diagrams.	CLO2	U	7
	b)	A control word is given CW=94. Explain the conditions of all ports in 8255A Write an assembly program to generate a square wave of 1 KHz using SOD pin.	CLO2	An	3
<b>OR</b>					
Q5.	a)	Draw the block diagram of 8255 and explain its working.	CLO2	U	7
	b)	Determine the control word for the following configuration of 8255:- Port A – Output Mode of port A – Mode 1 Port B – Output Mode of port B – Mode 0 Port C lower (pins PC0 – PC2) – Output	CLO2	An	3