


Name:			
Enrolment No:			
<b>UPES</b> <b>End Semester Examination, December 2023</b>			
<b>Course: Microprocessor and Microcontroller</b> <b>Program: B. Tech Electrical Engineering</b> <b>Course Code: ECEG-3013</b>		<b>Semester: V</b> <b>Time : 03 hrs.</b> <b>Max. Marks: 100</b>	
<b>Instructions: a. Attempt all the questions.</b> <b>b. There is a choice in Q 9 and Q 11.</b> <b>c. Assume any data in programming, if required</b>			
<b>SECTION A</b> <b>(5Qx4M=20Marks)</b>			
S. No.		<b>Marks</b>	<b>CO</b>
Q 1	Sketch the pin diagram of 8355 (ROM).	4	CO2
Q 2	Brief the function of the instruction queue in the 8086 microprocessor.	4	CO2
Q 3	Explain the interrupts classification of 8085 microprocessor.	4	CO1
Q 4	Illustrate the mode of operation of 8086 microprocessor.	4	CO1
Q 5	Describe the various addressing modes of 8051 microcontrollers with examples.	4	CO2
<b>SECTION B</b> <b>(4Qx10M= 40 Marks)</b>			
Q 6	Draw and explain the function and modes of USART (8251) with the help of block diagram.	10	CO3
Q 7	a) A door sensor is connected to the P1.1 pin, and a buzzer is connected to P1.7. Write an 8051 C program to monitor the door sensor, and when it opens, sound the buzzer. You can sound the buzzer by sending a square wave of a few hundred Hz. b) Draw the block diagram of 8253 timer and explain the function of each block.	5+5	CO4
Q 8	Articulate the architecture of 8086 microprocessor in detail.	10	CO4
Q 9	Describe the chip select logic for 8255 in 8085 microprocessor-based system with the help of diagram. OR Write an assembly language program for 8085 microprocessor/8051 microcontroller to find the largest number in a data array listed below in table 1.  Table 1: Data array	10	CO3

		<b>Memory Address</b>	<b>Data</b>			
		3500 H	06 H			
		3501 H	38 H			
		3502 H	94 H			
		3503 H	EB H			
		3504 H	A8 H			
<b>SECTION-C</b> <b>(2Qx20M=40 Marks)</b>						
Q 10	a) Evaluate the timing diagram of instruction MVI A, 30 H with suitable sketch and explain the function of each machine cycle. b) Describe the requirement of Memory Segmentation in 8086 Microprocessor and also brief the various types of segmentation.			<b>20</b>	<b>CO3</b>	
Q 11	A hardware in loop application requires interfacing of a keypad with 8051 microcontroller. Write a program to interface a 4x4 matrix keypad with the 8051 microcontroller and display the pressed key on an output device.  OR a) Describe the mode of operation of Timer circuit – 8155 in detail. b) Analyze the various operating Modes of 8254.			<b>20</b>	<b>CO4</b>	