SVKM's NMIMS
MUKESH PATEL SCHOOL OF TECHNOLOGY MANAGEMENT & ENGINEERING / SCHOOL OF TECHNOLOGY MANAGEMENT & ENGINEERING

Academic Year: 2021-22

Programme: B. Tech / MBA Tech (Computer) Year: II Semester: IV

Subject: Microprocessor and Microcontroller

Date: 20 April 2022

Marks: 100
Time: 10.00 am to 1.00 pm
Durations: 3 (hrs)
No. of Pages: 02

Final Examination

Instructions: Candidates should read carefully the instructions printed on the question paper and on the cover of the Answer Book, which is provided for their use.

1) Question No. _1_ is compulsory.
2) Out of remaining questions, attempt any __4__ questions.
3) **In all _5_ questions to be attempted.**
4) All questions carry equal marks. ~~Give a brief comparison of AVR and PIC microcontrollers~~
5) **Answer to each new question to be started on a fresh page.**
6) **Figures in brackets on the right-hand side indicate full marks.**
7) **Assume Suitable data if necessary.**

Q1		Answer briefly: (Attempt All)	[20]
CO-1; SO-1 ; BL-4	a.	8086 : Explain the function of the following pins of 8086: (i) ALE (ii) NMI (iii) INTR (iv) HOLD (v) HLDA	
CO-2; SO-6; BL-6	b.	Illustrate and explain the Control and Status Word of 8087 Coprocessor	
CO-3 ; SO-4 ; BL-4	c.	Explain with necessary Special function register format, the power saving modes of 8051 microcontroller.	
CO-4 ; SO-6 ; BL-6	d.	Describe the use of following Arduino Pins: i. Power/GND ii. Analog iii. Digital iv. PWM v. AREF	
Q2 CO-1; SO-1; BL-1	A	Draw the schematic internal block diagram of 8086 and explain the function of each block.	[20]
	B	Recognize to which set these instructions belongs to: • MOVSB • LEA	

		• LDS & Write an 8086-assembly language program for a block containing 10 elements which needs to be transferred from source to destination using STRING instruction and write the output.	
Q3 CO-1; SO-2; BL-4	A	Draw bus-cycle timing diagram for memory read operation in minimum mode and explain briefly.	[20]
	B	List types of interrupts in 8086 and Explain sequence of events takes place when Interrupt occurs in 8086 processor	
Q4 CO-4; SO-1,2; BL-3	A	Discuss the Interrupt structure of 8051 Microcontroller with a neat diagram. Mention the SFR's available for handling interrupts and give their priorities.	[20]
	B	Write a neatly commented 8051 assembly language program to generate a square wave at P2.3 with a frequency of 5 KHz. Crystal frequency is 16 MHz. Use any timer	
Q5 CO-3; SO-4; BL-6	A	Illustrate how oscillator frequency is made available to Timer stages and describe the Timer Mode 2 operation of 8051. Give the format of the SFR used to select the various timer modes.	[20]
	B	Draw and explain the architecture of Arduino Uno board.	
Q6 CO-4; SO-6; BL-6	A	A set of 10 bytes in available in the byte addressable area of 8051 at addresses 70h to 7Ah. Write a neatly commented ALP to read this data byte by byte and transfer it serially. Baud rate is 4800	[20]
	B	Write short note (Attempt any 2) 1. IVT 2.Contrast on AVR and PIC Microcontrollers 3.Data type in 8087 4. SCON	