Academic Year: 2021-22

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

Subject: Microprocessor and Microcontroller

Marks: 100
Time: 10.00 am to 1.00 pm
Date: 11 June 2022 Durations: 3 (Hrs)
No. of Pages: 02

Re-Examination (2021-22)

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.
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.
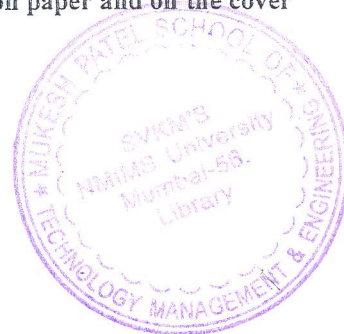
Q1		Answer briefly (Attempt All)	[20]
CO-1; SO- 1; BL-4	a.	Explain the function of the following pins of 8086: (i) BHE (ii) NMI (iii) TEST (iv) LOCK (v) DEN	
CO- 2; SO- 6; BL-3	b.	How stack is operated in 8087	
CO-3 ; SO- 2; BL-2	c.	Sketch and explain the RAM architecture of 8051 Microcontroller with appropriate labels.	
CO- 4; SO- 6; BL-3	d.	Give a brief comparison of AVR and PIC microcontrollers	
Q2 CO-1;	A	Draw bus-cycle timing diagrams for memory write operation in minimum mode and explain briefly.	[20]

SO-1; BL-2	B	Recognize to which type of addressing mode it belongs to : • MOV AX, BX • MOV AX, [BX] • MOV AX,20H & Write an 8086 assembly language program for multiplication of two 16 bit numbers write the output.	
Q3 CO-1; SO-4; BL-1	A	Explain segmented memory module for 8086 and list the advantages memory segmentation also calculate physical address when (CS=1000H AND IP =0300H)	[20]
	B	Draw and explain 8086 interfacing with 8259 PIC.	
Q4 CO-4; SO-1, 6; BL-2,3	A	Compare Microprocessor and Microcontroller. Explain interfacing of external memory with 8051 Microcontroller with necessary diagram.	[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-4; SO-6; BL-3	A	Illustrate the SFR's used to configure serial communication operation in 8051. Discuss Mode 2 of serial data communication and mention the significance of the SMOD bit.	[20]
	B	Draw and explain the architecture of Arduino Uno board.	
Q6 CO-4; SO-6; BL-3	A	Write a neatly labelled 8051 ALP for receiving 10 bytes of serial data and save the data in RAM addresses 60h onwards. The serial reception baud rate is 9600.	[20]
	B	Write short note (Attempt any 2) 1. IVT 2. ATMEGA328 Microcontroller used in Arduino UNO 3. Minimum mode configuration diagram in 8086 4.TMOD	