Reg. No.

B.E / B.TECH. DEGREE EXAMINATIONS, MAY 2023
Fourth Semester
IT18402 – MICROPROCESSORS AND MICROCONTROLLER INTERFACING
(Information Technology)
(Regulation 2018 / Regulation 2018A)

TIME:3 HOURS   MAX. MARKS: 100

CO 1	Develop programs in 8086 microprocessor by understanding its architecture, instruction set and interrupt process.	**5**
CO 2	Sketch the system bus structure of 8086 and multiprocessor configurations.	**3**
CO 3	Design I/O and Memory interfacing units.	**5**
CO 4	Develop programs in 8051 microcontroller by understanding its architecture and instruction set.	**3**
CO 5	Design various interfacing units with 8051 microcontroller based systems.	**5**

PART- A (10x2=20Marks)
(Answer all Questions)

		CO	RBT LEVEL
1.	How 16 bit address is converted into 20 bit address in 8086?	1	1
2.	Distinguish between Macros and Procedures.	1	2
3.	How does the main processor distinguish its instructions from the co-processor instructions when it fetches the instructions from memory?	2	2
4.	Examine the signals used by 8086 to demultiplex the address/data and to control the databus.	2	2
5.	Configure the control word for the following specifications of 8255, In mode 0 operation, Ports A and B are input ports and Port C is an output port.	3	2
6.	List the four display modes of 8279 keyboard and display controller.	3	2
7.	Discuss on the PSW in 8051 with suitable diagram.	4	1
8.	Write an 8051 ALP to multiply two numbers are 45H and 9AH.	4	3
9.	Discuss on the operating mode 0 of 8051 serial port?	5	2
10.	Identify the function of IE register in 8051.	5	2

PART- B (5x 14=70Marks)

			Marks	CO	RBT LEVEL
11. (a)	**(i)**	Demonstrate with an example for the 8086 instructions: AAA,CWD, JNBE, LAHF, MOVS, RCL, ROL,SAHF	**(10)**	1	3
	(ii)	Discuss on assembler directives with suitable examples.	**(4)**		

(OR)

(b)	**(i)**	Illustrate the functions of the bus interface unit and execution unit of 8086 microprocessor with neat architecture diagram.	**(7)**	1	3
	(ii)	Illustrate the interrupt structure of an 8086 microprocessor with interrupt pointer table.	**(7)**		

12. (a) Demonstrate with the timing diagram about the signals involved in minimum and maximum mode operation of 8086 microprocessor based system . **(14)** 2 3

(OR)

(b) Illustrate in detail the coprocessor, closely coupled and loosely coupled configuration of multiprocessor configuration with suitable diagrams. **(14)** 2 3

13. (a) Choose an integrated chip to be used for parallel communication and illustrate how its is interfaced with the 8086 Processor with neat diagram. **(14)** 3 3

(OR)

(b) Point out the features and interpret how 8257 is interfaced with 8086 and also explain how it functions as a DMA controller. **(14)** 3 3

14. (a)	**(i)**	Illustrate the architectural features of 8051 microcontroller with analysis on the internal RAM structure and SFR memory.	**(7)**	4	3
	(ii)	Classify the different addressing modes in 8051 microcontroller with an example.	**(7)**	4	3

(OR)

(b)	**(i)**	Tabulate the comparisons of CALL, RET ,PUSH and POP instructions in 8051.	**(7)**	4	3
	(ii)	Interpret the following 8051 instructions with an example: DA , MUL, SWAP and SJMP.	**(7)**	4	3

15. (a) Draw the diagram to interface a stepper motor with 8051 microcontroller and explain. Write its ALP to run the stepper motor in both forward and reverse direction with delay. **(14)** 5 3

(OR)

(b) Demonstrate the different modes of operations in Intel 8051 timer/counter with suitable diagrams **(14)** 5 3

PART- C (1x 10=10Marks)
(Q.No.16 is compulsory)

		Marks	CO	RBT LEVEL
16.	Develop ALP program to perform sorting for any given ten numbers in ascending and descending order.	**(10)**	1	5

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