Q. Code:956995

Reg. No. | | | | | | | | | | | | | |

B.E. / B.TECH. DEGREE EXAMINATIONS, MAY 2024

Fourth Semester

IT22402 -MICROPROCESSOR AND MICROCONTROLLER INTERFACING

(Regulation 2022)

TIME:3 HOURS **MAX. MARKS: 100**

COURSE OUTCOMES	STATEMENT	RBT LEVEL
CO 1	Develop and implement programs on 8086 microprocessors.	**3**
CO 2	Interpret I/O circuits.	**4**
CO 3	Build Memory Interfacing circuits.	**3**
CO 4	Develop and implement 8051 microcontroller based systems	**3**
CO 5	Interpret on 8051 interfaces and understand about ARM Processor.	**4**

PART- A (20x2= 40Marks)

(Answer all Questions)

		CO	RBT LEVEL
1.	If the execution unit generates effective address of 43A2 H and the DS register contains 4000 H. What will be the physical address generated by the BIU?	**1**	**2**
2.	Identify and analyze the different flags present in the 8086 processor.	**1**	**2**
3.	Determine the addressing modes involved in the following 8086 instructions: MOV AX, 0005H; MOV AX, 50H [BX][SI].	**1**	**3**
4.	Differentiate between Macro and Subroutine.	**1**	**2**
5.	Interpret the use of READY signal in 8086 processor.	**2**	**2**
6.	How does the main processor distinguish its instructions from the co-processor instructions when it fetches the instructions from memory?	**2**	**2**
7.	Indicate the outcome ,what happens when a high is applied to RESET pin?	**2**	**2**
8.	Interpret on different process components and states in multi programming approach.	**2**	**2**
9.	Develop a program segment to change the direction of the stepper motor from clockwise direction to anticlockwise direction.	**3**	**3**
10.	Compare memory mapped Input Output from Input Output mapped Input Output.	**3**	**2**
11.	Classify the different display modes of 8279 keyboard and display controller.	**3**	**2**
12.	Comment on key technique and explain how to eliminate it?	**3**	**3**
13.	Identify the single instruction, which clears the most significant bit of B register of 8051, without affecting the remaining bits.	**4**	**2**

14.	How does the status of EA pin affect the access to internal and external program memory?	**4**	**2**
15.	Discuss on the PSW in 8051 with suitable diagram.	**4**	**2**
16.	Develop an 8051 ALP program Monitor P1.2, if P1.2 = 1 copy 45H to external RAM address.	**4**	**3**
17.	Interpret on Jazelle extension in ARM processors.	**5**	**3**
18.	Examine the role of the SM2 bit located in the SCON register of the 8051 microcontroller.	**5**	**2**
19.	Interpret on different priority levels of the interrupt sources in 8051.	**5**	**2**
20.	Discuss on "Thumb" state in ARM processor architecture.	**5**	**2**

PART- B (5x 10=50Marks)

			Marks	CO	RBT LEVEL
21. (a)		Illustrate the operational roles of the bus interface unit and execution unit within the 8086 microprocessor with neat organized architecture diagram.	**(10)**	**1**	**3**
		(OR)			
(b)	**(i)**	Interpret different addressing modes of 8086 processor with an example.	**(5)**	**1**	**3**
	(ii)	Compute how macro parameters are used in 8086 with detailed explanation.	**(5)**	**1**	
22. (a)		Illustrate the closely coupled and loosely coupled configuration of multiprocessor configuration with suitable diagram.	**(10)**	**2**	**3**
		(OR)			
(b)		Interpret the signals involved in minimum and maximum mode operation of 8086 microprocessor based system with neat timing diagram.	**(10)**	**2**	**3**
23. (a)		Construct the parallel communication interface with 8086 microprocessor with detailed explanation on different modes of operation .	**(10)**	**3**	**3**
		(OR)			
(b)		Point out the features and interpret the operation of 8254 Programmable Interval Timer with various modes of operation.	**(10)**	**3**	**3**

24. (a)	Illustrate the architectural features of 8051 microcontroller, identify the bit and byte address registers with necessary diagram and analyze the internal RAM structure,SFR memory of 8051.	**(10)**	**4**	**3**
	(OR)			
(b)	Interpret on different interrupts and interrupt programming with respect to 8051 microcontroller with neat diagram.	**(10)**	**4**	**3**
25. (a)	What is timer/counter? Interpret the TMOD and TCON registers with various modes of 8051 microcontroller with suitable diagrams.	**(10)**	**5**	**3**
	(OR)			
(b)	With a neat circuit diagram, explain how LCD is interfaced with 8051 micro controller and develop an 8051 ALP to display a character using an LCD display.	**(10)**	**5**	**3**

PART- C (1x 10=10Marks)

(Q.No.26 is compulsory)

		Marks	CO	RBT LEVEL
26.	Develop 8086 ALP program to perform sorting for any given ten numbers in ascending and descending order.	**(10)**	**1**	**3**