Reg.No.:												

VIVEKANANDHA COLLEGE OF ENGINEERING FOR WOMEN
[AUTONOMOUS INSTITUTION AFFILIATED TO ANNA UNIVERSITY, CHENNAI]
Elayampalayam – 637 205, Tiruchengode, Namakkal Dt., Tamil Nadu.

Question Paper Code: 7016

B.E. / B.Tech. DEGREE END-SEMESTER EXAMINATIONS – MAY / JUNE 2024
Sixth Semester
Biomedical Engineering
U19EC519 – MICROPROCESSOR AND MICROCONTROLLER
(Common to ECE)
(Regulation 2019)

Time: Three Hours | Maximum: 100 Marks

Answer ALL the questions

Knowledge Levels (KL)	K1 – Remembering	K3 – Applying	K5 - Evaluating
	K2 – Understanding	K4 – Analyzing	K6 - Creating

PART – A

(10 x 2 = 20 Marks)

Q.No.	Questions	Marks	KL	CO
1.	Write a program to clear the contents of Flag Register.	2	K3	CO1
2.	Identify the function of EU in 8086 Microprocessor.	2	K2	CO1
3.	What is segment override prefix? Give an example.	2	K2	CO2
4.	State the function of BHE and A0 pins of 8086.	2	K2	CO2
5.	Differentiate between Direct I/O and Memory-mapped I/O.	2	K5	CO3
6.	Write short notes on parallel communication interface.	2	K2	CO3
7.	What are the different Jump instructions available in 8051 microcontrollers?	2	K2	CO4
8.	What are the interrupts available in 8051?	2	K2	CO4
9.	When are timer overflow bits set and reset?	2	K2	CO5
10.	How sensors can be interfaced in 8051Microcontroller?	2	K2	CO5

PART – B

(5 x 13 = 65 Marks)

Q.No.			Questions	Marks	KL	CO
11.	a)	i.	Draw and explain the timing diagram of OUT 60H of Intel 8085 microprocessor.	7	K2	CO1

		ii.	Describe RIM and SIM instructions.	6		
			(OR)			
	b)	i.	Write a program to generate one second delay using 8085 Microprocessor. Show necessary calculations (Assume a Crystal frequency of 6 MHz).	7	K3	CO1
		ii.	Define Instruction Cycle, Machine Cycle and T-State.	6		
12.	a)	i.	How is pipeline achieved in 8086 microprocessors?	6	K2	CO2
		ii.	Describe the three basic multiprocessor configurations in detail.	7		
			(OR)			
	b)	i.	Describe the memory segmentation in 8086 and list its advantages.	6	K2	CO2
		ii.	Draw and discuss the read bus cycle of 8086 in minimum mode.	7		
13.	a)	i.	Explain the DMA operation in 8257 with suitable block diagrams.	7	K2	CO3
		ii.	Explain the major components of 8259 with necessary diagrams.	6		
			(OR)			
	b)	i.	Describe the interfacing of Analog to Digital Converter in 8085 microprocessors with necessary circuit diagram.	7	K2	CO3
		ii.	Discuss the various operating modes of 8254.	6		
14.	a)	i.	Write down the functions of all the pins of Port 3 in 8051 Microcontroller.	7	K3	CO4
		ii.	Find the minimum of a set of three numbers, store the result in 80H using 8051 assembly language programming.	6		
			(OR)			
	b)	i.	Describe the different addressing modes of 8051 Microcontroller with suitable examples.	7	K3	CO4
		ii.	Count the number of 1s in an 8-bit number stored in 40H and store the result in 41H using 8051 assembly language programming.	6		
15.	a)	i.	Explain how serial communication takes place in 8051.	7	K3	CO5
		ii.	Write a program to shift the bits of Port P1 of 8051 Microcontroller one by one in sequence continuously with 1 sec delay.	6		
			(OR)			

b)	i.	Explain the functions of TCON and TMOD Registers in detail.	7	K3	CO5
	ii.	Write a program to read an 8-bit temperature in Celsius from Port P1 and to output the farenheight temperature equivalent onto Port P2 of 8051 Microcontroller.	6		

PART – C

(1 x 15 = 15 Marks)

Q.No.		Questions	Marks	KL	CO
16. a)	i.	Explain the function of pins used in the minimum and maximum modes of 8086 microprocessor.	8	K3	CO1
	ii.	Design a memory map for 8085 such that it should contain 2KB of EPROM and 2KB of RAM with starting address 0000H and 6000H.	7		
		(OR)			
b)	i.	Explain the function of IE and IP register contents.	8	K3	CO5
	ii.	Show simple keyboard interface with port of 8051 and explain how the scanning can identify the key pressed.	7		