Hall Ticket Number:

Code No. : 16348 N

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS), HYDERABAD
Accredited by NAAC with A+-- Grade
B.E. (E.E.E.) VI-Semester Main Examinations, May/June-2023
Microprocessors and Microcontrollers Applications

Time: 3 hours

Max. Marks: 60

Note: Answer all questions from Part-A and any FIVE from Part-B

Part-A (10 × 2 = 20 Marks)

Q. No.	Stem of the question	M	L	CO	PO
1.	Explain Direct Addressing Mode in 8086 with an Example.	2	1	1	1,2,35
2.	Explain how do we operate 8086 in Minimum Mode or Maximum Mode.	2	2	1	1,2,35
3.	Explain the following Assembler Directives i) ORG ii) DT	2	1	2	1,2,35
4.	Explain the Difference between ROL and RCL instructions in 8086 with an Example.	2	2	2	1,2,35
5.	How many 128*8 RAM chips are needed to provide a memory capacity of 2048 bytes? Justify.	2	3	2	1,2,35
6.	The 8255 is configured as follows : PORT A as input, PORT B as output and PORTC as Output Find the Control Byte for this configuration.	2	3	2	1,2,35
7.	The default value of stack pointer is _____ 8051.	2	1	3	1,2,35
8.	The Value of TMOD in 8051 to configure Timer 0 in Mode 1 Operation is _____	2	2	3	1,2,35
9.	Name any three Interrupts in 8051.	2	1	4	1,2,35
10.	Calculate the Machine Cycle time in 8051 for a Crystal Oscillator frequency of 12 MHz.	2	2	4	1,2,35

Part-B (5 × 8 = 40 Marks)

11. a)	Explain why memory is segmented in 8086 and also explain how memory is addressed using segmentation.	4	2	1	1,2,35
b)	Explain the different addressing modes of 8086 microprocessor.	4	1	1	1,2,35
12. a)	What is a Macro? How it differs from a procedure?	4	3	2	1,2,35
b)	Explain the following assembler directives of 8086 microprocessor. (i) SEGMENT (ii) ASSUME (iii) PUBLIC (iv) OFFSET	4	1	2	1,2,35

			M	L	CO	PO
13.	a)	Explain the internal block diagram of 8251 USART.	4	2	2	1,2,35
	b)	Interface 8255 with 8086 so as to have port A address 00, port B address 02, port C address 02 and CWR address 03 with a suitable diagram.	4	4	2	1,2,35
14.	a)	Explain the steps Involved for using Timer 1 in Mode 1 Operation in 8051 to produce a square wave of 50% duty cycle on P1.3.	4	4	3	1,2,35
	b)	Draw the Block Diagram of 8051 and explain the importance of individual components.	4	2	3	1,2,35
15.	a)	Develop the logic to interface the stepper Motor with 8051 to rotate in CW and Counter Clockwise direction, what are the various hardware components required for this interface.	4	4	4	1,2,35
	b)	Explain Various Flags used in 8051 and how are these flags effected during the arithmetic and logical operations with an example.	4	2	4	1,2,35
16.	a)	Explain the register configuration of 8086 microprocessor.	4	2	1	1,2,35
	b)	Write an 8086 program to move a string from one location to another location in the memory.	4	3	2	1,2,35
17.		Answer any *two* of the following:				
	a)	Draw the Internal Block diagram of 8237 DMA Controller.	4	2	2	1,2,35
	b)	Explain the operation of Stack in 8051 with an Example.	4	3	3	1,2,35
	c)	Write an ALP to interface seven segment display with an 8051 and explain the logic.	4	4	4	1,2,35

M : Marks;   L: Bloom's Taxonomy Level;   CO; Course Outcome;   PO: Programme Outcome

i)	Blooms Taxonomy Level – 1	20%
ii)	Blooms Taxonomy Level – 2	40%
iii)	Blooms Taxonomy Level – 3 & 4	40%

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