Total No. of Questions: 6 *Total No. of Printed Pages:3*

Enrollment No.....

Faculty of Engineering

End Sem Examination Dec 2024

EC3CO10 Microprocessors & Microcontrollers

Programme: B.Tech. Branch/Specialisation: EC

Duration: 3 Hrs. **Maximum Marks: 60**

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d. Assume suitable data if necessary. Notations and symbols have their usual meaning.

			Marks	BL	CO	PO	PSO
Q.1	i.	Which of the following addressing method does the instruction, MOV AX,[BX] represent? (a) Register indirect addressing mode (b) Direct addressing mode (c) Register addressing mode (d) Register relative addressing mode	**1**	2	1	1	1
	ii.	How many flip-flops are there in a flag register of 8085 microprocessor? (a) 4 (b) 5 (c) 7 (d) 10	**1**	1	1	1	1
	iii.	In 8086 the overflow flag is set when- (a) The sum is more than 16 bits. (b) Signed numbers go out of their range after an arithmetic operation (c) Carry and sign flags are set (d) Subtraction	**1**	2	1	5	1
	iv.	The SP is indicated by- (a) Single pointer (b) Stack pointer (c) Source pointer (d) Destination pointer	**1**	1	1	1	1
	v.	DMA stands for- (a) Display Memory Access (b) Directly Memory Access (c) Device Memory Access (d) Direct Memory Access	**1**	1	1	1	1

P.T.O.

vi.	Which of the following are known as Higher Address Bus? (a) A15 - A8 (b) AD7 - AD0 (c) READY (d) WR	**1**	1	1	1	1			
vii.	How many timers exist in 8051 which is 16-bit? (a) 0 (b) 1 (c) 2 (d) 3	**1**	1	1	1	1			
viii.	When the microcontroller executes some arithmetic operations, then the flag bits of which register are affected? (a) PSW (b) SP (c) DPTR (d) PC	**1**	2	1	5	1			
ix.	The CISC stands for _____. (a) Computer Instruction Set Compliment (b) Complete Instruction Set Compliment (c) Computer Indexed Set Components (d) Complex Instruction set computer	**1**	1	1	1	1			
x.	Because of Pentium's superscalar architecture, the number of instructions that are executed per clock cycle is- (a) 1 (b) 2 (c) 3 (d) 4	**1**	1	1	1	1			

Q.2	i.	What are the different buses in 8085 microprocessor? Explain it.	**2**	2	1	1	1		
	ii.	Explain all register of 8085 microprocessor.	**3**	2	1	1	1		
	iii.	Draw and explain the memory input RD and WR cycle for 8085 microprocessor.	**5**	2	1	5	1		
OR	iv.	Draw the architecture of 8085 and explain its working.	**5**	2	1	5	1		
Q.3	i.	What are the function of index register and pointer register?	**2**	2	2	1	1		
	ii.	What is physical address? Explain with example.	**3**	3	2	1	1		
	iii.	Draw the PIN diagram of 8085 and explain each pin function in detail.	**5**	2	2	5	1		
OR	iv.	Write down an assembly language program to find out the largest number from an array using index register.	**5**	3	3	5	1		

Q.4	i.	Write down any four advantages of interfacing.	**2**	2	2	1	2		
	ii.	Draw the 8K*8 RAM memory interfacing with microprocessor.	**3**	3	2	3	2		
	iii.	Draw the PIN diagram 8259A Programmable interrupt controller and explain its interfacing with microprocessor.	**5**	3	2	5	2		
OR	iv.	Draw the architecture of 8257 DMA controller and explain its interfacing with microprocessor.	**5**	3	2	5	2		
Q.5	i.	Draw the PSW and explain each block.	**2**	2	1	1			
	ii.	Explain the addressing modes of 8051microcontroller with example.	**3**	2	3	1			
	iii.	Draw the PIN diagram of 8051 Microcontroller and explain each pin function in detail.	**5**	2	1	5			
OR	iv.	Draw the architecture of 8051 Microcontroller and explain its working.	**5**	2	1	5			

Q.6		Attempt any two:							
	i.	Write down any ten differences between RISC and CISC.	**5**	2	4	1	2		
	ii.	Draw and explain the architecture of Pentium processor.	**5**	2	4	3	2		
	iii.	Draw and explain the architecture of ARM processor.	**5**	3	4	3	2		

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Marking Scheme
EC3CO10 Microprocessors & Microcontrollers

Q.1	i)	a	**1**
	ii)	b	**1**
	iii)	b	**1**
	iv)	b	**1**
	v)	d	**1**
	vi)	a	**1**
	vii)	c	**1**
	viii)	a	**1**
	ix)	d	**1**
	x)	b	**1**

Q.2	i.	3 buses in 8085 microprocessor each have 0.66 marks	
	ii.	Explain 8085 register -3 Marks	**3**
	iii.	Draw the memory input RD and WR cycle for 8085 microprocessor. 2marks explain the memory input RD and WR cycle for 8085 microprocessor 3marks	**5**
OR	iv.	Draw the architecture of 8085 2marks Explain 8085 working. 3marks	**5**

Q.3	i.	The function of index register and pointer register each have 1 marks	**3**
	ii.	What is physical address 1 marks Explain with example. 2marks	**3**
	iii.	PIN diagram 8259- 2marks Function each pin- 3 marks	**5**
OR	iv.	Write down an assembly language program to find out the largest number from an array using index register. 5marks	

Q.4	i.	Write down the advantage of interfacing any(4) Each 0.5	
	ii.	Draw the 8K*8 RAM memory interfacing with microprocessor. 3marks	
	iii.	Draw the PIN diagram 8259A Programmable interrupt controller 2marks. 8259A Programmable interrupt controller explain its interfacing with microprocessor 3marks.	
OR	iv.	Draw the architecture of 8257 DMA controller 2marks. 8257 DMA controller explain its interfacing with microprocessor. 3marks	

Q.5	i.	Draw - 1 marks. explain. 2marks	**3**
	ii.	Explain the addressing modes of 8051microcontroller with example. 3marks	
	iii.	Draw the PIN diagram of 8051 Microcontroller 2marks PIN diagram of 8051 Microcontroller explain each pin function in detail. 3marks	
OR	iv.	Draw the architecture of 8051 Microcontroller 2mark Architecture of 8051 Microcontroller explain its working. 3marks	

Q.6

i.	Write down the differences between RISC and CISC (any 10). (each difference 0.5)	
ii.	Draw the architecture of Pentium processor. 2marks Explain the architecture of Pentium processor. 3marks	
iii.	Draw the architecture of ARM processor. 2marks Explain the architecture of ARM processor. 3marks	

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P.T.O.