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

Enrollment No.....

Faculty of Engineering

End Sem Examination May-2024

IT3CO32 Microprocessor & Microcontroller

Programme: B.Tech. Branch/Specialisation: IT

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.

Q.1 i. Which of the following is true about microprocessors? **1**

(a) It has an internal memory
(b) It has interfacing circuits
(c) It contains ALU, CU, and registers
(d) It uses Harvard architecture

ii. Which of the following is a property of RST 7.5 interrupt? **1**

(a) It is a non-maskable interrupt
(b) It has 3rd highest priority
(c) It uses level-triggered signal
(d) Its vectored address is 003C H

iii. The IF is called as…….. **1**

(a) initial flag (b) indicate flag (c) interrupt flag (d) inter flag

iv. The 1 MB byte of memory can be divided into segment- **1**

(a) 1 Kbyte (b) 64 Kbyte (c)33 Kbyte (d) 34 Kbyte

v. DMA stands for- **1**

(a) Display Memory Access (b) Directly Memory Access
(c) Device Memory Access (d) Direct Memory Access

vi. Which of the following is not true features of 8257? **1**

(a) It has three channels which can be used over three I/O devices
(b) Each channel has 16-bit address and 14-bit counter
(c) Each channel can transfer data up to 64kb
(d) Each channel can be programmed independently

vii. The internal RAM memory of the 8051 is: **1**

(a) 32 bytes (b) 64 bytes
(c) 128 bytes (d) 256 bytes

P.T.O.

	viii.	The 8051 microcontroller is of _____ pin package as a _____ processor. (a) 30, 1byte (b) 20, 1 byte (c) 40, 8 bit (d) 40, 8 byte	**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**
	x.	Which of the block is not considered as a block of an architecture of 80286? (a) Address unit (b) Bus unit (c) Instruction unit (d) Control unit	**1**
Q.2	i.	Draw memory ready cycle for 8085 microprocessor.	**2**
	ii.	Draw and explain the flag register in 8085 microprocessor.	**3**
	iii.	Explain the addressing modes with example in 8085 microprocessor.	**5**
OR	iv.	Explain the types of interrupt for 8085 microprocessor.	**5**
Q.3	i.	Define the physical address with example in 8086 microprocessor.	**2**
	ii.	Explain the segmentation of memory of 8086 microprocessor.	**3**
	iii.	Write assembly language program for find out largest number form an array with comments and example using 8086 microprocessor.	**5**
OR	iv.	Draw and explain the pin diagram of 8086 microprocessor with minimum and maximum mode.	**5**
Q.4	i.	Draw the pinout diagram of 8259 interrupt controller.	**2**
	ii.	Draw and explain the PROM memory interfacing with of 8086 microprocessor.	**3**
	iii.	Draw the 8253 program counter timer interfacing with microprocessor and explain it.	**5**
OR	iv.	Draw and explain the Pin diagram of 8251 USART.	**5**
Q.5		Attempt any two:	
	i.	Write down any ten differences between microcontroller and microprocessor.	**5**
	ii.	Draw and explain the internal architecture of 8051 microcontroller.	**5**
	iii.	Define memory organization and addressing modes in 8051 microcontroller.	**5**

Q.6		Attempt any two:	
	i.	Write down any ten differences between RISC and CISC.	**5**
	ii.	Draw and explain the Von Neumann and Harvard Architecture.	**5**
	iii.	Draw model for ARM processor and explain it.	**5**

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Marking Scheme

IT3CO32 Microprocessor & Microcontroller

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

Q.2	i.	Diagram of memory ready cycle for 8085 microprocessor	**2**
	ii.	Draw flag register in 8085 microprocessor. 1 Marks Explain the flag register in 8085 microprocessor. 2 Marks	
	iii.	5 addressing modes with example of 8085 microprocessor. 5 Marks	
OR	iv.	the types of interrupt for 8085 microprocessor. 5 Marks	

Q.3	i.	physical address with example in 8086 microprocessor 2 Marks	
	ii.	the segmentation of memory 3 Marks	
	iii.	assembly language program for find out largest number form an Array 3 Marks for comment 1 Marks for example 1 Marks	
OR	iv.	Pin diagram of 8086 microprocessor 2 Marks explain the Pin diagram of 8086 microprocessor with minimum and maximum mode 3 Marks	

Q.4	i.	Diagram of 8259 interrupt controller pin diagram. 2 Marks	
	ii.	Diagram for memory interfacing with microprocessor 1 Marks explain the memory interfacing with microprocessor 2 Marks	
	iii.	Diagram 8253 program counter timer interfacing with microprocessor. 2 Marks Explain the 8253 program counter timer interfacing with microprocessor. 3 Marks	

OR	iv.	Draw the Pin diagram of 8251 USART. 2 Marks Explain the Pin diagram of 8251 USART. 3 Marks	

Q.5	i.	Each Difference between Microcontroller and microprocessor 0.5mark 5 Marks	
	ii.	Draw internal architecture of 8051 microcontroller 2 Marks explain the internal architecture of 8051 microcontrolle 3 Marks	
	iii.	Define memory organization 8051 microcontroller 2 Marks Addressing modes in 8051 microcontroller. 3 Marks	

Q.6			
	i.	Each difference between RISC and CISC 0.5 total 5 Marks	
	ii.	Draw and explain the Von Neumann 3 Marks Draw and explain Harvard Architecture 2 Marks	
	iii.	Draw model for ARM processor 2 Marks. Explain model for ARM processor. 3 Marks	

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