Register Number | | | | | | | | | |

Sri Sivasubramaniya Nadar College of Engineering, Kalavakkam – 603 110

(An Autonomous Institution, Affiliated to Anna University, Chennai)

Department of Computer Science and Engineering

Continuous Assessment Test – III

Answer Key

Degree & Branch	B.E. Computer Science and Engineering				**Semester**	V
Subject Code & Name	UCS1502 -Microprocessors and Interfacing				**Regulation: 2018**	
Academic Year	2020-2021	**Batch**	2018-2022	**Date**	**29.10.2020**	**10.30am-12.00noon**
Time: 90 Minutes	**Answer All Questions**				**Maximum: 50 Marks**	

Part – B(Attend Question 21a or 21b, Question 22 is compulsory) (20 Marks)

K2	21a. Explain 8259 in detail.(10) **Hints** Block diagram and explanation Main signals explanation Command words (ICWs, OCWs) ➢ There are 4 ICWs in 8259. – ICW1 – to give basic settings – ICW2 – to setup call vector address or interrupt number – ICW 3 – to give ID for slaves – ICW 4 – 85/86 selection, buffered mode selection, priority modes etc. 2. Operation Command Words (OCWs): These are the command words which command the 8259 to operate in various interrupt modes. ➢ There are 3 OCWs in 8259 – OCW1 – to setup masking – OCW2 – EOI (used to reset ISR bits) – OCW3 – To setup special mask mode , poll mode etc Some important command word formats Polling mode (OR) 21b. Explain 8237 in detail.(10) **Hints** Basic DMA operation Block diagram Main signal description 16 bit address generation diagram	CO3

	Different registers and explanation Software commands Types of transfer Some important word formats	
K3	22. Assume that the number of persons who can enter a room should be restricted to maximum of 9 people. Design an 8051 based system for this scenario by programming counter 1 in mode1 , display the count value to port 2 as the people enter the room and generate an active high signal at P0.1 when count reaches 9. Also include reset mechanism to reset system.(10) Hints Diagram with explanations TMOD=50H Clear TH1 and TL1 Set p3.5 (T1 input) Set tr1(start counter) Display the count to port2 and repeat it until TL1 = 09 If TL=9, stop timer, output logic 1 to p0.1 and restart the counter (clear count reg, TF1 and restart)	CO5

Part – C (10 Marks)

K 3	23. How to interface 8279 in interrupt mode for reading a key press? Explain with a sample ALP and diagram. Assume the port addresses.(10)
	
	Hints
	Diagram with explanations
	Connect IRQ of 8279 to INT input of 8086 or any of the 8259s input
	
	Sample ALP
	
	Main program
	MOV AL,00
	MOV [1901], AL
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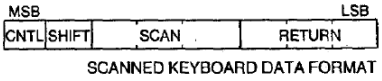
	Sub-routine
	PUSH SI
	PUSH AX
	PUSHF
	
	MOV SI, 1901
	MOV [1901], 40 ; read FIFO RAM control word
	DEC SI
	MOV AL, [SI]
	AND AL, 3F
	MOV [2500], AL
	
	POPF
	POP AX
	POP SI
	
	 
	
	SCANNED KEYBOARD DATA FORMAT
		CO3