Sri Sivasubramaniya Nadar College of Engineering, Kalavakkam – 603 110

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

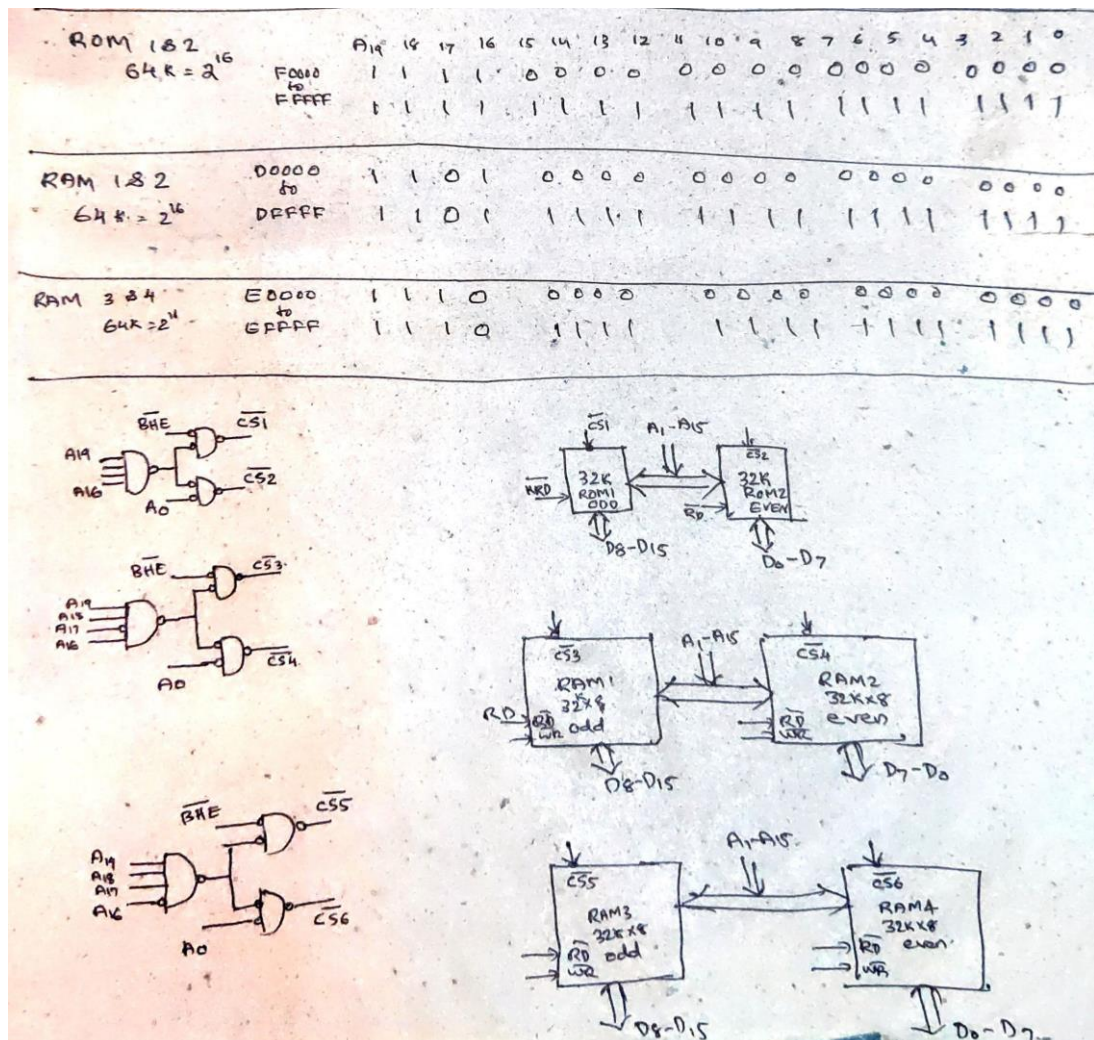Department of Computer Science and Engineering

Continuous Assessment Test –II

Answer Key

Degree & Branch	B.E. & CSE				Semester	V
Subject Code & Name	UCS1502 - Microprocessors and Interfacing				**Regulation:**	**2018**
Academic Year	2021-2022	**Batch**	2019-2023	**Date**	**23.09.2021**	**FN**
Time: 90 Minutes	**Answer All Questions**				**Maximum: 50 Marks**	

8. Interface 2 chips of 32K x 8 ROM and 4 chips of 32K x 8 RAM with 8086, according to the following address mapping.

ROM 1 & 2	F0000 to FFFFF
RAM 1 & 2	D0000 to DFFFF
RAM 3 & 4	E0000 to EFFFF

K3

CO3

Part – C Answer any TWO questions (2×10 = 20 Marks)

K1	10. Explain I/O processor 8089 and how it communicates with 8086. ➔ Explanation of 8089 with block diagram ➔ Communication flowchart	CO2
	11. Explain the system design of 8086 with 8087 in multiprocessor configuration along with its synchronization mechanism. ➔ Diagram of system design ➔ Flowchart of synchronization ➔ Proper explanation with specific details	
K3	12. Interface 8255 with 8086 to display the count of even numbers in BCD format, after examining an array of 16 eight bit numbers available in memory to seven segment LED displays connected to port A and B. (Use memory mapped I/O for interfacing and assume the port addresses as, port A = 08000, port B=08001, port C=08002, Control reg=08003 and DS=0000. Explain the system design along with 8086 ALP) 1. Find out the even no: count 2. Convert it into BCD [BCD₁, BCD₀] 3. Write appropriate control word to 8255 Control register 4. Write BCD₁ and BCD₀ to 2 different o/p ports where 7-Segment LEDs are connected Draw the connection diagram with up address lines, 8255, 7 segment decoder and 7 Segment LEDs.	CO3
K3	13. Interface 8255 with 8086 to display the counting sequence in BCD using seven segment LED displays connected to port A and B. The interfaced system should act as up counter when switch connected to PC7 is logic-0 and as down counter when it is logic-1. The counter should count from $(00)_{10}$ to $(99)_{10}$ and vice-versa. (Use I/O mapped I/O for interfacing and assume the port addresses as, port A = 8000, port B = 8001, port C = 8002, Control reg = 8003. Explain the system design along with 8086 ALP)	CO3

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checkswitch : If switch=1 goto down

Count ++ ;

goto Continue

down : Count -- ;

Continue : Convert Count to BCD_1, BCD_0

Send it to 2, 8255 o/p ports where LEDs are Connected.

If $count_{16} \le 62$ goto checkswitch

count = 0;

goto checkswitch

Draw proper Connections with 8086 address lines, 8255, 7 segment decoder and 7 segment LEDs.