Register Number:……..

KUMARAGURU college of technology
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B.E DEGREE EXAMINATIONS: MAY 2018

(Regulation 2015)

Sixth Semester

COMPUTER SCIENECE & ENGINEERING

U15CST503 : Microprocessor and Microcontroller

COURSE OUTCOMES

CO1: Illustrate the architecture of 8086 processor its instruction set and write assembly language programs.
CO2: Illustrate the configurations of 8086 microprocessor.
CO3: Develop memory interfacing circuits.
CO4: Build input/output circuits.
CO5: Outline the architecture of 8051 microcontroller and its instruction set.

Time: Three Hours **Maximum Marks: 100**

Answer all the Questions:-
PART A (10 x 1 = 10 Marks)

1. Match: CO1 [K_1]

List I	List II
A. MOV SB/SW	i. loads AL/AX register by content of a string
B. CMPS	ii. moves a string of bytes stored in source to destination
C. SCAS	iii. compares two strings of bytes or words whose length is stored in CX register
D. LODS	iv. scans a string of bytes or words

	A	B	C	D
a)	ii	iii	iv	i
b)	iii	iv	ii	i
c)	ii	iv	iii	i
d)	iii	i	ii	iv

2. In 8086 microprocessor, which one of the following statements is not true? CO1 [K1

a) Coprocessor is interfaced in MAX mode
b) Coprocessor is interfaced in MIN mode
c) I/O can be interfaced in MAX / MIN mode
d) Supports pipelining

3. Which of the following statements are true with respect to 8086 memory addressing schemes? CO2 [K_2]

1. Memory mapped I/O can access 1 MB memory locations or I/O ports
2. I/O mapping doesn't require any special instructions to access I/O devices
3. Memory mapped I/O is suitable for large systems
4. I/O mapped I/O is not treated as memory location

a) 1,3
b) 1,4
c) 2,4
d) 2,3

4. In 8086 microprocessor, which one of the following instructions is executed before an arithmetic operation? CO2 [K_2]

a) AAM b) DAA
c) AAD d) DAS

5. Assertion (A): If the output port is to source large currents, the port lines must be buffered. CO3 [K_1]
Reason (R): The latch is used as an output port.

a) Both A and R are Individually true and R is the correct explanation of A
b) Both A and R are Individually true but R is not the correct explanation of A
c) A is true but R is false
d) A is false but R is true

6. In control word register of 8253, if SC1=0 and SC0=1, then the counter selected is-------- CO3 [K_2]

a) Counter 0 b) Counter 2
c) Counter 1 d) Counter 3

7. The sequence of events that occur while an interrupt occurs are CO4 [K_1]

1. The microprocessor checks the status of INTR signal during the execution of each instruction.
2. When an interrupt is received, the microprocessor saves the address of the next instruction on stack and executes the received interrupt.
3. When the INTR signal is high, the microprocessor completes its current instruction and sends active low interrupt acknowledge signal.
4. The microprocessor executes instructions from where it left off.

a) 2-3-4-1 b) 1-3-2-4
c) 3-4-2-1 d) 4-1-3-2

8. MOV A, @ R1 will---------- CO4 [K_2]

a) copy the accumulator to R1
b) copy the accumulator to the contents of memory whose address is in R1
c) copy R1 to the accumulator
d) copy the contents of memory whose address is in R1 to the accumulator

9. Assertion (A): While instructions tell the CPU what to do, directives give the directions to the assembler. CO5 [K_1]
Reason (R): It aids the execution of instructions.

a) Both A and R are Individually true and R is the correct explanation of A
b) Both A and R are Individually true but R is not the correct explanation of A
c) A is true but R is false
d) A is false but R is true

10. An alternate function of port pin P3.4 in the 8051 is---------- CO5 [K_1]

a) interrupt 1 b) Timer 1
c) Timer 0 d) interrupt 0

PART B (10 x 2 = 20 Marks)
(Answer not more than 40 words)

11. Write any 4 Byte and String manipulation instructions of 8086. CO1 [K_1]

12. What do you mean by Modular programming in 8086? CO1 [K_1]

13. Show the 8086 signals with a diagram. CO2 [K_1]

14.	Give the need for Multiprogramming in 8086.	CO2	[K_2]
15.	What is the use of a DMA controller?	CO3	[K_1]
16.	List the difference between Parallel and Serial communication methods.	CO3	[K_2]
17.	Write any 2 Addressing modes available in 8051.	CO4	[K_1]
18.	List the Special function registers of 8051 microcontroller.	CO4	[K_1]
19.	How will you perform the serial port programming in 8051?	CO5	[K_2]
20.	Give the significance of Timers in 8051 microcontroller.	CO5	[K_2]

Answer any FIVE Questions:-
PART C (5 x 14 = 70 Marks)
(Answer not more than 300 words)

Q.No. 21 is Compulsory

21.	Describe the working of 8086 in the maximum mode. Show how it differs from the minimum mode.	CO2	[K_2]
22.	Explain the different Addressing modes available in 8086 with 2 examples for each mode.	CO1	[K_2]
23.	Elaborate on the differences between closely coupled and loosely coupled configurations of 8086 microprocessor.	CO2	[K_2]
24.	Discuss the operation of 8253 programmable timer with a block diagram. Give its significance.	CO3	[K_2]
25.	Explain the function of 8279 Programmable Keyboard /Display Interface with a neat sketch.	CO3	[K_2]
26.	Show the architecture schematic of 8051 microcontroller and explain the internal components.	CO4	[K_2]
27.	Explain how you interface a Stepper motor with 8051 and generate waveforms.	CO5	[K_2]

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