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Name :	
Roll No.:	A Spanning and Exclusion
Invigilator's Signature:	

CS/M.TECH (ME)/SEM-2/ME-202/2012

2012 ADVANCED MICROPROCESSOR AND MICROCONTROLLER

Time Allotted: 3 Hours Full Marks: 70

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Answer any *five* questions. $5 \times 14 = 70$

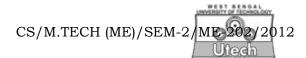
- a) Draw the schematic block diagram of 8088
 microprocessor and explain the function of each block
 briefly.
 - b) Write the difference between the following: 2×3
 - i) 8085 microprocessor and 8086 microprocessor.
 - ii) 8088 microprocessor and 8086 microprocessor
- a) Discuss logical address and physical address of 8086 microprocessor.
 - b) Determine the physical address when C = 4767 H and offset address = 4230 H.
 - c) What is the function of flags in a microprocessor? What are the different flags available in 8086? Explain the operation of each flag.

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- 3. a) Define minimum mode and maximum operation of 8086 microprocessor.
 - b) Draw the timing diagram of memory write bus cycle of 8086.
 - c) Discuss Based Indexed with displacement addressing of 8086 and 8088 microprocessors.
 - d) What is the output of DL after exectution of the following instructions?MOV DL, 36AND DL, OF
- 4. Write the assembly language program of 8051 microcontroller (any four): $4 \times 3\frac{1}{2}$
 - a) Addition of two 16-bit numbers
 - b) 2's complement of a 8-bit number and store the result in 9405 H memory location
 - c) Multiplication of two 8-bit numbers
 - d) Find the smallest number from an array of numbers.
 - e) Find square of a number using look-up table.
 - f) Division of two 8-bit numbers.
- 5. Write the short notes on any *four* of the following: $4 \times 3\frac{1}{2}$
 - a) Registers of 8086
 - b) Applications of microprocessors × micro controllers
 - c) Instruction format of 8088
 - d) Memory organization of 8051
 - e) Key board interface
 - f) ADC interface.



- 6. a) What are the different instruction groups of 8051 microcontroller?
 - b) Explain the functions of the following instructions. 5
 - i) ADD A, @ Ri (ii) MOV A, @ A + DPTR
 - (iii) MOV DPTR, # 4050H (iv) MUL AB (v) DIV AB
 - c) How many *T* states are required to execute the following instructions?

MOV CX, 8000 H 4 T states

Loop: DEC CX 2 T states

NOP 3 T states

JNZ Loop 16T states / 13 T states

- 7. a) Write assembly language program of 8086 microprocessor for the following :
 - i) Shift Left of a 16-bit number by one bit 3
 - ii) Addition of a string of words with a sum of 16 bit. 3
 - b) What will be the result after executing the following instructions:

MOV AL, O5

MOV CL, 05

MUL CL

AAM

c) Define assembler. Write advantages of assembler. 4
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8.	a)	What are the advantages of having segmentation : 8086 microprocessor?	in 2
	b)	What do you mean by sub-routines? How sub-routine are used in a program?	es 3
	c)	What do you mean by 8-bit microprocessor?	1
	d)	What do you mean by pipelined architecture?	1
	e)	Compare memory mopped I/O and I/O mapped I/O.	2
	f)	What are the function $\overline{\it EA} / V_{pp}$ and $\overline{\it PSEN}$ pins of 808	36
		microprocessor?	2
	g)	What is the advantage of multiplexed address and dabus? Show how it can be demultiplexed in 8085.	ta 3