



BITS PILANI DUBAI CAMPUS

DUBAI INTERNATIONAL ACADEMIC CITY, DUBAI UAE

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Dubai Campus

II SEM 2018-2019

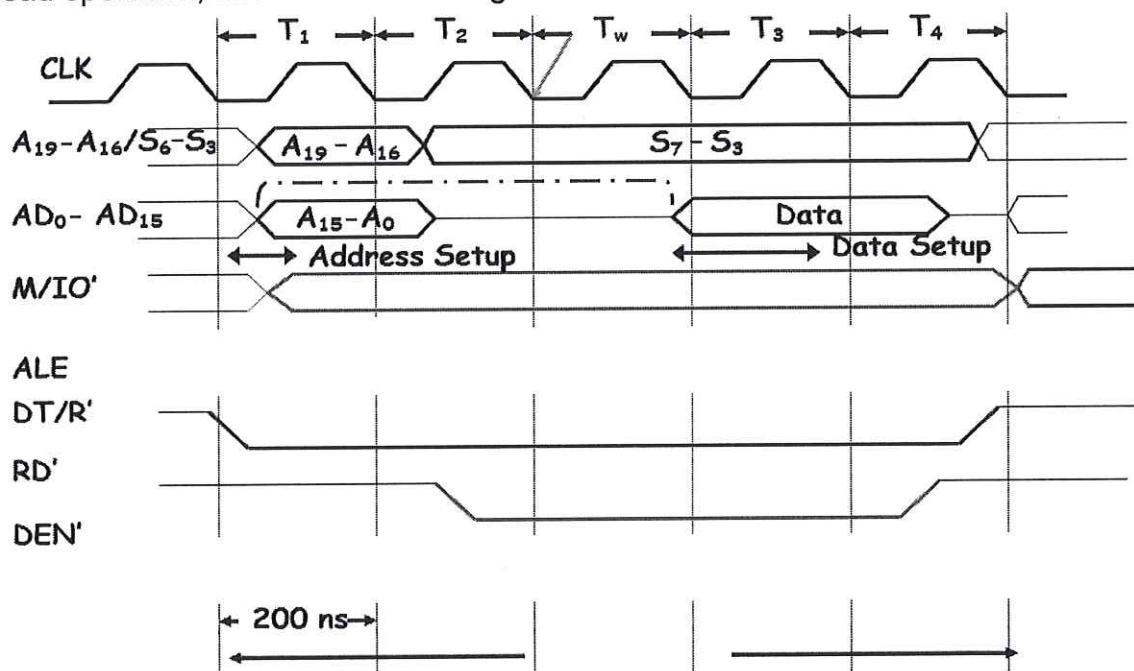
Evaluation Component: QUIZ-2	Date/Time/Duration: 20 Minutes
Course No : CS/ECE/EEE/INSTR F241	Course Name : MIRCOPROC & INTERFACING
Maximum Marks : 14	Weightage : 07%

Note: Answer all the questions and any missing data can be assumed suitably

ID.No.	Name:	Faculty:
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Q.1 Draw the signal graph for **ALE** and **DEN** in following timing diagram for memory read operation, and correct M/I/O' signal.

3



Q.2 Calculate the Number of Machine cycle, Total number of T states and time required (Nano seconds) to execute following code snippet in a 8086 microprocessor with a clock frequency of 8MHz without any wait states introduced in machine cycles

2+2+2

Assembly Code	Machine Code
MOV BX,2000H	BB0020
MOV AX,[BX]	8B07
ADD AX,CX	01C8

Total No. of Machine Cycle=

Total No. of T states =

Time required = ns



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Q.3	Fill the missing entries in the following table pertaining to Memory / IO read and write operations (2M)	2																				
	<table><tr><td>M/IO'</td><td>RD'</td><td>WR'</td><td>Bus cycle</td></tr><tr><td>-----</td><td>0</td><td>1</td><td>MEMR'</td></tr><tr><td>1</td><td>1</td><td>-----</td><td>MEMW'</td></tr><tr><td>0</td><td>-----</td><td>1</td><td>IOR'</td></tr><tr><td>-----</td><td>1</td><td>0</td><td>IOW'</td></tr></table>	M/IO'	RD'	WR'	Bus cycle	-----	0	1	MEMR'	1	1	-----	MEMW'	0	-----	1	IOR'	-----	1	0	IOW'	
M/IO'	RD'	WR'	Bus cycle																			
-----	0	1	MEMR'																			
1	1	-----	MEMW'																			
0	-----	1	IOR'																			
-----	1	0	IOW'																			
Q4	Explain the function of the following pins in 8086 processor in one sentence, MN/MX', BHE', NMI.	3																				



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Evaluation Component: QUIZ-1	Date/Time/Duration: 20 Minutes
Course No : CS/ECE/EEE/INSTR F241	Course Name : MIRCOPROC & INTERFACING
Maximum Marks : 16	Weightage :08%

Note: Answer all the questions and any missing data can be assumed suitably

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Q.1	Suppose the Physical address of the memory is F2020 , what is the content of DS register and offset address. DS=F000 and offset address = 2020	2
Q.2	Identify the addressing modes for following instructions 1. MOV AX,[1234] 2. MOV AX,[BX+1020] a) Direct Addressing b) Register Relative Addressing .	2
Q.3	Compute the Physical address generated by 8086 microprocessor for following 1. CS=2300H IP= 1024H 2. DS=48A8H BX=1234H a) 24024H b) 49CB4H	2



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Q4	<p>For the following instruction determine the Machine code Assume instructions are in 16-bit mode of operation</p> <p>MOV AX, [ECX+4]</p> <p>678B4104_H</p>	5
Q5	<p>Convert the following machine code to Assembly language code Assuming 16 bit mode of operation</p> <p>6689840001</p> <p>MOV [SI+0100_H], EAX</p>	5

BYTE 1						BYTE 2						BYTE 3	BYTE 4
1	0	0	0	1	0							Low	High
Opcode						D	W	MOD	REG	R/M		Disp	Disp

T1 9/16/22

Q.1	What is the content of BX and CX register in hexadccimal, when following assembly code snippets are executed? MOV CX,04H CLC MOV BH,00H MOV BL,48H Up: RCR BL,02 JNC down INC BH Down: LOOP up INT 3	8M
Q.2a	Obtain the equivalent Machine Instruction format for following 8086 assembly instruction. MOV BX,50[EBX]	3M
Q.2b	Obtain equivalent Assembly instruction format for following 8086 machine code 887C56	4M
Q.3	Write a program to find Smallest No. in a block of data. Length of block is 0AH. Store the minimum in location result	8M
Q.4	Write a program to find the no. of occurrences of data 05H in a given array of 10 bytes of data. Use the string instruction SCASB. Save the count at memory ANS.	7M



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Evaluation Component: TEST-2(Open Book)	Date/Time/Duration: 50 Minutes
Course No : CS/ECE/EEE/INSTR F241	Course Name : MIRCOPROC & INTERFACING
Maximum Marks : 40	Weightage : 20%

Note: Answer all the questions and any missing data can be assumed suitably

Q.1	<p>Calculate the Number of Machine cycle, Total number of T states and time required (Nano seconds) to execute following code snippet in a 8086 microprocessor with a clock frequency of 10MHz.If eachy machine cycle requires 2 wait states introduced in it.</p> <table><tr><th>Assembly Code</th><th>Machine Code</th></tr><tr><td>ADD AX,[BX]</td><td>0307</td></tr><tr><td>MOV ECX,CC001267H</td><td>66B9671200CC</td></tr><tr><td>MOV AX,DS:[BP]</td><td>3E8B46</td></tr></table>	Assembly Code	Machine Code	ADD AX,[BX]	0307	MOV ECX,CC001267H	66B9671200CC	MOV AX,DS:[BP]	3E8B46	2+2+1
Assembly Code	Machine Code									
ADD AX,[BX]	0307									
MOV ECX,CC001267H	66B9671200CC									
MOV AX,DS:[BP]	3E8B46									
Q.2	<p>An 8088 based system has A Total of 448K of memory requirement out of which 256K is ROM and rest is RAM.</p> <ul style="list-style-type: none">• ROM with a starting add of 00000_H• RAM with a starting add of 40000_H <p>Chips available:</p> <ul style="list-style-type: none">• 271024,16512, LS138. Design the memory interfacing circuit using absolute addressing.	10								
Q.3	<p>It is required to interface 576Kbytes of Memory to 8086 Microprocessor, out of which 128 Kbytes is ROM and remaining is RAM. Specifications are as follows</p> <ul style="list-style-type: none">• Out of 128 Kbytes of ROM First half will start from the address 00000H and second half will start from the address F0000H. The RAM will start from the address 40000H.• Chips available: 27256 61256 Inverters 02 74LS138 (4 nos) <p>Design Memory Interfacing circuit assuming system is expandable.</p>	20								



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Q4

5

Following is a memory interfaced to 80286 microprocessor, identify the size of memory both ROM and RAM and its address space.

