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JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT
TEST-1 EXAMINATION – February 2019
B.Tech, IVth Semester, CSE

COURSE CODE: **10B11CI401** MAX. MARKS: **15**
COURSE NAME: **MICROPROCESSORS AND CONTROLLERS**
COURSE CREDITS: **4** MAX. TIME: One Hr

Note: ***All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means. Missing data, if any, can be appropriately assumed.***

1(a) With a neat sketch explain the architecture of 8085 processor. **[CO1, 3M]**

(b) Find the decimal values represented by the following single-precision numbers. **[CO1, 1M]**

(i) 1 01000011 10110000000000000000000 **(ii)** 0 10000111 01010000000000000000000

(c) Suppose that DS = 3000H, SS = 200H, BP = 100H, DI = 50H and BX = 70H. Determine the memory address accessed by each of the following instructions. **[CO2, 1M]**

(i) MOV DX, [BX+20H] **(ii)** MOV [BP+DI], BX

2(a) Find the assembly language instructions for the following 8086 machine language instructions.

(i) 889A0010H **(ii)** 8A263412H **[CO2, 1M]**

(Hint: Opcode for MOV is 100010; Use tables given below to generate machine code)

MOD	*Function*
00	No displacement
01	8-bit sign-extended displacement
10	32-bit signed displacement
11	R/M Is a register

Code	W = 0 *(Byte)*	W = 1 *(Word)*	W = 1 *(Doubleword)*
000	AL	AX	EAX
001	CL	CX	ECX
010	DL	DX	EDX
011	BL	BX	EBX
100	AH	SP	ESP
101	CH	BP	EBP
110	DH	SI	ESI
111	BH	DI	EDI

R/M Code	*Addressing Mode*
000	DS:[BX+SI]
001	DS:[BX+DI]
010	SS:[BP+SI]
011	SS:[BP+DI]
100	DS:[SI]
101	DS:[DI]
110	SS:[BP]*
111	DS:[BX]

*Note: Special Addressing Mode when MOD=00

(b) What is a flag register? With a neat sketch describe the different fields in 8085 flag register. **[CO1, 1M]**

(c) Write an assembly level program to copy 40 bytes of data from the memory location starting at 2000:0100H to another memory location starting at 3000:0100H. Fill 10 bytes of memory starting from 3000:0110H with the data 55H. **[CO2, 3M]**

3. The value of ***sin(x)*** is approximated as $x - \frac{x^3}{6}$ in a certain application. Write an assembly level program for 8086 processor to read the value of x from the input port 24H and write the value of ***sin(x)*** at the output port 26H. **[CO2, 5M]**

NOT A FINAL EXAMINATION FEB 2019