

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -2 EXAMINATIONS-2023

B.Tech-IV Semester (ECM)

COURSE CODE (CREDITS): 20B11EM411(4)

MAX. MARKS: 25

COURSE NAME: Microprocessor, Microcontrollers and Interfacing Techniques

COURSE INSTRUCTORS: Dr. Shweta Pandit

MAX. TIME: 1 Hour 30 Minutes

Note: All questions are compulsory. Marks are indicated against each question in square brackets.

- Q1. a)** Mention the new value of SP and location of higher and lower byte of BX register on stack after PUSH BX instruction is executed. Assume SS=0800, SP=0300, BX=5739H before execution of PUSH BX. [2][CO-1][CO-2]
- b)** What is difference between JUMP and CALL instruction? Compare the word in AX with the word in BX. Jump to label BIG if contents of AX are greater than or equal to the contents of BX and to label SMALL if contents of AX are smaller than BX. Write appropriate comments for your program. [1+2][CO-2]
- Q2. a)** Develop a sequence of instructions that sets (1) the rightmost 3 bits of CX; clears (0) the leftmost 4 bits of CX; and inverts bits 7, 8, and 9 of CX. [2][CO-2]
- b)** Suppose that initially BH = 10011011, CF=1, CL=4 for each of the following instructions. Mention the content of BH after execution of each instruction:
(i) SHL BH,CL (ii) SHR BH,CL (iii) SAR BH,CL (iv) ROL BH, CL (v) ROR BH,CL (vi) RCL BH,CL [3][CO-2]
- Q3. a)** Develop a short sequence of instructions that stores 20H into 1000H bytes of memory, beginning at extra segment memory location DATAZ using LOOP instruction. Write appropriate comments for your program. [3][CO-2]
- b)** Take a word placed in BP and perform only logical operations on that word so that it equals F0F0H, no matter what the starting value in BP was. [2][CO-2]
- Q4. a)** Compare the byte in BL against the bytes in memory from DS:2200H to DS:2233H using 8086 instruction sets. Place the count of number of matches found in register CL. Write appropriate comments for your program. [3][CO-2]
- b)** What is Interrupt vector table and difference between hardware and software interrupts? The interrupt vector for an INT 99H instruction is stored at which memory locations? [3][CO-3][CO-4]
- Q5 a)** Mention the different signals found in the microprocessor-based system for an OUT 45H, AX instruction. [1][CO-3]
- b)** What is near and far CALL instruction and how CALL instruction is related to procedure? Write a near procedure that cubes the contents of the BL register. This procedure may not affect any register except BL. [1+2][CO-2]