

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -2 EXAMINATIONS-2023

B.Tech-V Semester (ECE/Minor ECE)

COURSE CODE (CREDITS): 18B11EC512 (3)

MAX. MARKS: 25

COURSE NAME: Microprocessor and Interfacing

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)** Write an assembly language program that increments the register CX from the count of 0000H until it equals the number placed in register DX. Write proper comments for each instruction used in the program. [1+0.5][CO-2]
- b)** Write an assembly language program that compare two sections of memory to search for a match. If two memory sections are equal, store 1 in DL register else store 0 in DL. Write proper comments for each instruction used in the program. [2+0.5] [CO-2]
- c)** With an example differentiating between near jump and far jump instruction. [1][CO-5]
- Q2. a)** Write an assembly language program that adds the 8-digit BCD number in AX and BX to the 8-digit BCD number in CX and DX. (AX and CX are the most significant registers. The result must be found in CX and DX after the addition). Write proper comments for each instruction used in the program. [2+0.5][CO-2]
- b)** Write an assembly language program that calculates and stores the first 10 numbers of Fibonacci series starting from 1000:1000. Write proper comments for each instruction used in the program. [2+0.5][CO-2]
- Q3 a)** What are interrupt and interrupt vector? [1][CO-4]
- b)** Write the instruction/ instructions that: [2][CO-2]
- (i) make bit 10th of DX register to 0 without changing any other bit position values.
- (ii) make all even number bit positions of AX register to be inverted and odd number bit positions to be set
- c)** Let BH = 9BH, CF = 0, CL = 2. What will be the content of BH after following arithmetic instructions? [2][CO-2]
- (i) SHR BH, CL (ii) SAR BH, CL (iii) ROL BH, CL (iv) SHL BH, CL
- Q4. a)** Mention the default combination of segment and offset registers in 8086 microprocessor. [2][CO-5]
- b)** What is the role of direction flag in microprocessor's string instructions? Develop a sequence of instructions that scans through a 300H-byte section of memory 1000:0200H, located in the data segment, searching for a 99H. [1+2][CO5][CO2]
- Q5. a)** What is the role of IN AX, 77H instruction? [1][CO-3]
- b)** What is procedure and near and far CALL instructions used for procedures? Write a near procedure that squares the content of DL register. [1+1][CO2][CO5]
- c)** Write an assembly language program that counts the number of bytes located in memory from DS:1000H to DS:1200H that are greater than 77H. Put the count in register CX. Write proper comments for each instruction used in the program. [2][CO2]