

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST-2 EXAMINATION – April 2018

B.Tech, IVth Semester (CSE)

COURSE CODE: 10B11CI401

MAX. MARKS: 25

COURSE NAME: MICROPROCESSORS AND CONTROLLERS

COURSE CREDITS: 4

MAX. TIME: 1.5 Hrs

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) Determine the content of AX after the execution of each instruction. Assume that the initial content of AX = AB11H. (2)
- (i) SHL AX, 3 (ii) SAR AX, 4 (iii) ROR AX, 12 (iv) RCR AX, 5
- (b) Differentiate between SCASB (Byte string scan) and CMPSB (Byte string compare). Write their equivalent instructions which can perform the same operation as that of SCASB and CMPSB. (3)
- 2(a) What is the difference between NEAR JMP and FAR JMP instructions? By using a diagram show the corresponding jump locations. (2)
- (b) Write an assembly language program to count the odd numbers in an array of 100H bytes stored from memory location 1000:1000H. Use loop instruction for your program. (3)
- 3(a) Describe the functions of the following pins of 8086. (2)
- (i) READY (ii) NMI (iii) ALE (iv) \overline{WR}
- (b) Draw the block diagram and explain the working of each sections of 8284A clock generator. (3)
- 4 Write an Interrupt Service Procedure starting from the memory location 3000:1F00H that searches through a block of 50H bytes of memory location MARKS. This procedure must count all the unsigned numbers that are above 30H and all that are below 30H. DH must contain the count of numbers above 30H, and DL must contain the count of numbers below 30H.
- The address of the above Interrupt Service Procedure is stored at the locations 0100H – 0103H of Interrupt Vector Table. Write the main program to call this interrupt. (4+1)
- 5 Write an inline assembly language program inside the C main function to read a character string from the keyboard. Check whether the string is a palindrome and display YES or NO on the screen. Use DOS interrupts for your program. (5)