

RAJSHAH UNIVERSITY OF ENGINEERING & TECHNOLOGY
DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

3rd Year ODD Semester Examination 2019

COURSE NO: CSE 3109 COURSE TITLE: Microprocessors and Assembly Language

FULL MARKS: 72

TIME: 3 HRS

- N B**
- Answer any **SIX** questions taking any **THREE** from each section.
 - Figures in the right margin indicate full marks.
 - Use separate answer script for each section.

52/66

SECTION : A

32/35

- Q1 (a) Define microprocessor. Describe the architecture of 8086, with neat block diagram. 6 5/6
 (b) Explain the significance of the following pins of 8086: 4 3/3
 i) INTR, ii) NMI, iii) RESET, iv) TEST
 (c) Explain the physical address formation in 8086. 2 2/2
- Q2 (a) A memory location has physical address 80ED2h. In what segment does it have offset BED2h? 3 3/3
 (b) How does BIOS load operating system when PC is powered up? 4 3/4
 (c) Write down the legal combinations of operands for MOV and XCHG operation. 5 4/5
- Q3 (a) If CS = 1000H, DS = 25A0H, SS = 3210H, ES = 5890H, BX = 43A9H, BP = 3400H, find the physical address of the source data for the following instructions: 4
 i) MOV AL, [BX + 1200H]
 ii) ADD BL, [BP + 05]
 (b) What is PSP? What is the purpose of using it? Explain with example. 3
 (c) Write an assembly language program to convert a 4 digit BCD number into hexadecimal number. 5
- Q4 (a) With appropriate block diagram discuss the process of solving a DMA request. 5 5/5
 (b) Describe the following DMA operations. 5 5/5
 i) Cycle stealing
 ii) Block transfer
 (c) Distinguish between minimum and maximum mode of a microprocessor. 2 2/2

SECTION-B

20/31

- Q5 (a) What is the protected mode of a CPU that uses 8086 microprocessor? 4 4/4
 (b) Discuss the purpose of using co-processor. 2 2/2
 (c) Draw the block-diagram of 8087 co-processor. 5
- Q6 (a) What is the purpose of INTR pin in 8086 microprocessors? 1 1/1
 (b) Suppose AX, BX contains some set of bits. Write necessary instructions in assembly language to perform multiplication of the contents of AX and BX and store the result into DX. 7 4/7
 (c) What will be the content of register AX after following instructions: 5 5/5
 MOV AX, F00H
 MOV CL, 03
 ROR AX, CL
- Q7 (a) Write an assembly language program that will take a binary number as input and count every pairs of 11 found in the input. 6 3/6
 (b) Sketch the content of stack memory indicating the value of SP register before PUSH BX operation and after the PUSH BX operation and POP BX operation. Assume SS = 2500H, BX = 432AH and SP = 1000H. 4 4/4
 (c) What is main difference between CISC and RISC architecture? 2 2/2
- Q8 (a) Write a program to find the substring "CSE" from the string "HELLOWCSEUET". 5
 (b) What is the difference between procedure and macro? Write a macro that will find the logical NAND value of two operands. 4
 (c) Explain register indirect addressing mode with example. 3