

Roll Number: _____

Thapar Institute of Engineering & Technology, Patiala

Department of Computer Science and Engineering

AUXILIARY EXAMINATION

B. E. (Third Year): Semester-VI

Course Code: UCS617

Course Name: Microprocessor-Based Systems Design

August 23, 2023

Time: 3 Hours, M. Marks: 100

Name of Faculty: Dr. Anju Bala

Note: Attempt all questions with proper justification.

Assume missing data, if any, suitably.

- Q1(a)** Explain the sequence of events in the execution of the CALL instruction by 8085. Draw the timing diagram for CALL 1234H present at location FEDCH. (10)
- Q1(b)** Write an assembly language program to convert a BCD number into binary in 8085. (10)
- Q2(a)** What is the need for memory segmentation in 8086 microprocessors; Explain all the segments in detail. (10)
- Q2(b)** Write the function and format of the FLAG register in 8085. If the clock frequency is 5 MHz, how much time is required to execute an instruction of 16 T states? (10)
- Q3(a)** Write an assembly language program in 8086 to perform division 23/7 using the ASCII codes. Store the result in memory location DS:SI. (10)
- Q3(b)** Draw the block diagram of 8255 and discuss its various blocks. Find the control word for the following configuration of the ports of Intel 8255. (10)
- Port A - Bidirectional
 - Port B -input
 - Mode of port B - Mode 0
 - Port C- output
- Q4(a)** The general-purpose register of 8086 contains the following values: AX = AC37H, BX = 1496H, CX = 7140H, and DX = 33ABH. Write the output and the values of the flag register of each instruction. Consider only the given register values while writing the answer for each instruction. (10)
- i. ADD AH, DH
 - ii. SUB CX, BX
 - iii. DEC CL
 - iv. CMP AX, DX
 - v. XOR BL, CL
- Q4(b)** Show the sequence of operations of the Programmable Interrupt Controller with an 8086 microprocessor. (10)
- Q5(a)** Discuss the following instructions with suitable example in 8086: (10)
- i. CMPSW
 - ii. LOOPZ
 - iii. AAA
 - iv. DAS
- Q5(b)** Design Interrupt vector tables of 8086 Microprocessor also show and explain all the interrupts. (10)