

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-V (NEW) EXAMINATION – WINTER 2018

Subject Code:2150707

Date:16/11/2018

Subject Name:Microprocessor and Interfacing

Time: 10:30 AM TO 01:00 PM

Total Marks: 70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

	MARKS
Q.1 (a) Explain the difference between a microprocessor and a microcomputer.	03
(b) List the four operations commonly performed by the MPU.	04
(c) Draw and Explain the functional Block diagram of 8085 microprocessor.	07
Q.2 (a) Specify the number of registers and memory cells in a 128×4 memory chip.	03
(b) List the sequence of events that occurs when the 8085 MPU reads from memory	04
(c) Identify the machine cycles in the following instructions	07
1. SUB B	
2. ADI 47H	
3. STA 2050H	
4. PUSH B	
OR	
(c) Describe basic Machine Cycle used in 8085. Draw Timing Diagram for OUT instruction	07
Q.3 (a) Define opcode and operand, and specify the opcode and the operand in the instruction MOV H, L	03
(b) Define addressing mode? State the addressing modes of the following instructions	04
1. MOV A, B	
2. LDA 2500H	
3. ANA M	
(c) Explain 8085 Programming Model and Flag Register.	07
OR	
Q.3 (a) List the four categories of 8085 instruction that manipulate data.	03
(b) Explain the functions of following instructions of 8085 – state the bytes occupied, number of Machine cycle required and T-States	04
1. LXI H, 2050H	
2. MOV B,A	
3. STA 5050H	
4. ADD C	
(c) Explain 8085 Programming model and classify instruction set on the basis of different addressing modes.	07

- Q.4 (a)** Specify the contents of the registers and flag status as the following instruction are executed. **03**

A B C D S Z CY

MVI A,00H
MVI D, F8H
MOV B, A
ADD D
HLT

- (b)** Write an 8085 Assembly language program to evaluate the Boolean equation $D = (B+C) * E$, where B, C, E represents data in various registers of 8085. **04**
- (c)** The following block of data is stored in the memory locations from 2050H to 2055H. Write an 8085 Assembly language program to Transfer the data to the locations 2080H to 2085H in the reverse order **07**
- DATA(H) 25, A5, 4F, E3, AF, F1

OR

- Q.4 (a)** Specify the output at PORT 7 if the following program is executed. **03**

MVI B, 82H
MOV A, B
MOV C, A
MVI D, 37H
OUT PORT 7
HLT

- (b)** Write an 8085 Assembly language program to interchange 16-bit data stored in memory locations 2050, 2051, 2052, and 2053. WITHOUT XCHG INSTRUCTION. **04**
- (c)** Write an 8085 Assembly language program to add the following data bytes stored in memory locations starting at 4050H and display the sum at the output port if the sum does not generate a carry, stop the addition, and display 01H at the output port. **07**
- DATA(H) 1A, 32, 4F, 12, 27

- Q.5 (a)** Draw Block Diagram and Pin Diagram of 8259 Microcontroller. **03**

- (b)** Design an up-down counter to count from 0 to 7 and 7 to 0 continuously with a 1-second delay between each count, and display the count at one of the output ports. Show the delay calculation **04**

- (c)** Discuss the features of ARM processor. **07**

OR

- Q.5 (a)** List and explain the interrupt available in microprocessor 8085. **03**

- (b)** A Railway crossing signal has two flashing lights run by a microcomputer. One light is connected to data bit D₇ and the second light is connected to data bit D₆. Write a program to turn each signal light alternately ON and OFF at an interval of 2 second. **04**

- (c)** Draw and explain architecture of SUN SPARK. **07**
