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MANIPAL INSTITUTE OF TECHNOLOGY Manipal University

## FOURTH SEMESTER B.Tech. (E & C) DEGREE END SEMESTER EXAMINATION NOV/DEC 2016 SUBJECT: INTRODUCTION TO MICROPROCESSORS (ECE - 346)

## **TIME: 3 HOURS**

Instructions to candidates

MAX. MARKS: 50

- Answer **ANY FIVE** full questions.
- Missing data may be suitably assumed.
- 1A. Sketch the block diagram of a computer system and explain all the blocks in it.
- 1B. Explain the following with respect to 8085 microprocessor.
  - i) General purpose registers ii) Flag registers
- 1C. Describe the operation of stack with suitable example.

(5+3+2)

- 2A. With the help of an example explain the types of instructions available in 8085 microprocessor.
- 2B. Write an 8085 program to find the number of negative numbers in an array. The width of the array is in 2500H and array begins at 2501H. Store the result in 8000H.
- 2C. Explain the use of ALE pin of 8085 microprocessor.

(5+3+2)

- 3A. Describe the different types of interrupts used in 8085 microprocessor.
- 3B. Interface the microprocessor 8085 with an eight bit ADC where Analog input is provided to channel 1. Write a program to read the digital data from the ADC, the address of which is 90H.
- 3C. Differentiate between memory mapped I/O and I/O mapped I/O interface.

(5+3+2)

- 4A. Explain the function of the following pins of 8085 microprocessor :
  - (i) ALE
  - (ii) IO/M
  - (iii) READY
  - (iv) HOLD
  - (V) Status signals
- 4B. Interface two 4KB ROM and two 2KB RAM with 8085 processor. RAM starts at address 8000H and ROM starts at address 0000H. Write the address decoding scheme using 3:8 decoder.
- 4C. List the four instructions which control the interrupt structure of the 8085 microprocessor.

(5+3+2)

5A. Interface the microprocessor 8085 with seven segment display. Write a program to display the given digits one by one continuously. The digits are "S, E, E & D". The codes for the digits must be saved ECE - 346
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in memory location 8000H.

- 5B. Explain modes of I/O operation of 8255 PPI.
- 5C. Write the control word format of 8255 PPI. Give the control word for interfacing a device to microprocessor in mode 0 with mode 0 with one 8 bit input port and one 8 bit output port.

(5+3+2)

- 6A. Write a program to develop a temperature controller system using 8085 microprocessor.
- 6B. Write an 8085 program to arrange the numbers in descending order. The width of the block of data is placed in 2600H and the numbers are placed from 2601H onwards. Store the result from 2601H onwards.
- 6C. Give the contents of the registers A and C after the execution of the following instructions.

MVI B, 0FH MVI C, FFH MVI A,00H STA 2400H LXI H, 2402H MOV M,C MOV C,B LDA 2402H

(5+3+2)