Enrolment No.

Date: 08/05/2017

**Total Marks: 70** 

## **GUJARAT TECHNOLOGICAL UNIVERSITY**

**BE - SEMESTER-VI (OLD) - EXAMINATION - SUMMER 2017** 

Subject Code: 162002

Subject Name: Micro Processors & Micro Controllers

Time: 10:30 AM to 01:00 PM

**Instructions:** 

- 1. Attempt all questions.
- 2. Make suitable assumptions wherever necessary.
- 3. Figures to the right indicate full marks.
- Q.1 (a) Give two examples for each of the following types of instructions and indicate 07 what each of these instructions do:
  - 1) ALU type of instructions.
  - 2) Instructions addressing memory; indirectly through any register pair.
  - 3) Conditional branch instructions.
  - 4) Interrupt related instructions.
  - **(b)** Give a general block diagram of an 8085 microprocessor. Explain briefly the 07 various blocks of the system.
- 0.2 Write an assembly language program to subtract one packed BCD number from 07 (a) another packed BCD number using 100's complement method and whose answer must be a BCD number.
  - Explain how to Set Interrupt Mask and Read Interrupt Mask in 8085 **(b)** 07 microprocessor with suitable example.

## OR

- Draw and explain the timing sequences of OUT10H instruction which is 07 **(b)** aligned at 4123HH address for 8085 microprocessor. (Hex Op-code for OUT instruction is D3H.)
- 0.3 Write an assembly language program to find the greatest number from an array 07 (a) at 4000H using 8085 instruction set and store the answer at 5000H.
  - **(b)** Using IC74LS138 (3:8 decoder) interface 16 Kbyte of EPROM at 0000H and 4 07 Kbyte of RAM at 2000H using two 8 Kbyte EPROMs (2784) and two 2 Kbyte RAMS (6116) for the 8085 microprocessor.

## OR

- Write an assembly language program to design an up counter (00H to FFH) 0.3 **(a)** 07 with a delay of 0.5 second between each count. After the count FFH, the counter should reset itself and repeat the sequence. (Assume the crystal frequency of 4MHz.)
  - **1.** Give the Difference between Microprocessor and Microcontroller. 04 **(b)** 2. Define Instruction cycle, Machine cycle and T-States with examples. 03
- Draw and explain the interfacing between 8031 microcontroller and an external **O.4** 07 **(a)** memory configuration consisting of 8Kbyte of program ROM. 07
  - **(b)** Explain the PCON register of 8051 microcontroller.

## OR

- 0.4 (a) If the crystal frequency is 11.0592 MHz; write a program for Timer 0 to create 07 a pulse width of 5msec on P2.3.
  - Write an assembly language program in 8051 microcontroller To perform BCD **(b)** 07 to Hexadecimal conversion.

- Q.5 (a) With crystal frequency of 11.0592 MHz, find the TH1 value needed to have the 07 following baud rates. (a) 9600 (b) 4800 (c) 2400 (d) 1200
  - (b) Explain the outcome for the instructions written in **bold** characters.

MOV A,#39H MOV R0,#15H MOV 15H, #12H INC @R0 DEC 15H INC R0 MOV 16H,A INC @R0 MOV DPTR, #12FFH INC DPTR DEC 83H

OR

- Q.5 (a) Write a program for the 8051 to receive bytes of data serially, and put them in 07 P1, set the baud rate at 4800, 8-bit data, and 1 stop bit
  - (b) Draw and explain the Interrupt Enable register of 8051 microcontroller. 07

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