

GUJARAT TECHNOLOGICAL UNIVERSITY
BE – SEMESTER – V (NEW) EXAMINATION – WINTER 2015

Subject Code: 2150907

Date:05/12/ 2015

Subject Name: Microprocessor and Microcontroller Architecture & Interfacing

Time:10:30am to 1:00pm

Total Marks: 70

Instructions:

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

- Q.1** (a) Draw the internal block diagram of microprocessor 8085 and explain the working of (i) Program Counter register (ii) Flag register with Bit significance. **07**
(b) What multiplexing? How it is done in microprocessor 8085 for address and data bus? Explain with neat diagram. **07**

- Q.2** (a) Some of the pins of 8085 are listed below .For each pin show whether it is an input line or an output line and mention its function. **07**
(1) ALE (2) SID (3) IO/ M⁻
(4) READY (5) HOLD (6) RESET OUT (7) RST
7.5
(b) Explain the execution of MOV C, M instruction using Timing diagram. **07**

OR

- (b) Write a detailed note on Memory Classification. **07**

- Q.3** (a) Explain the register banks and its switching in 8051. Explain SFR space in brief. **07**
(b) Write assembly language program count number of 0's and 1's in a byte stored in external memory location C500H. Draw flowchart. **07**

OR

- Q.3** (a) Discuss the difference between microprocessor and microcontroller. Explain the functionality of port 0 in 8051 is short. **07**
(b) Write an assembly language program to convert given binary number to 3 digit BCD number. Draw flowchart. **07**

- Q.4** (a) Explain the working of timer in 8051 using the configuration of TCON and TMOD registers. Explain the difference between timer operation in mode 0 and mode 1. **07**
(b) Write an assembly language program to accept 10 numbers from port 1 and store them in RAM locations starting from 50H. Draw flowchart. **07**

OR

- Q.4** (a) Explain the interfacing of multiple 7-segment display **07**
(b) Write a C program to send out the value 56H serially at a time via P3.0. The LSB should go out first. **07**

- Q.5** (a) Explain the Interrupt facility of 8051 microcontroller using IE and IP register. Also mention the internal priority of Interrupt and their vector locations. **07**
(b) Write a C program to transfer WELCOME serially at 9600 baud rate (8-data bits and 1 stop bit). Do this continuously. **07**

OR

- Q.5** (a) Explain editor, assembler, compiler and linker. Also explain assembler directives. **07**
(i) ORG (ii) EQU (iii) END
- (b) Draw and explain interfacing of external Program ROM with 8051 **07**
