

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-V(New) • EXAMINATION – WINTER 2016

Subject Code:2151707

Date:24/11/2016

Subject Name:Microcontroller & 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.

	1.	
Que-1		14
	1	What is the maximum size of a memory that can be interface with 8085 microprocessor ?
	2	Which is non maskable interrupt in 8085 ?
	3	For serial communication which pins are used by 8085 ?
	4	Which registers are used as a memory pointer in 8085?
	5	What is the purpose of Auxillary carry (AC) flag in 8085 ?
	6	What is an assembler ?
	7	What are the address ranges for 4K X 8 bits memory ?
	8	What is the equivalent 8 bit hex number for $(-3)_a$.
	9	How many bit processor 8085 is ?
	10	How many port pins are available in 8051 microcontroller for input output purpose?
	11	What is the size of stack pointer in 8051?
	12	What is the importance of GATE bit in TMOD register in 8051?
	13	How many timers are available in 8051 microcontroller ?
	14	If EA pin is low then which memory is accessed by 8051 microcontroller?
Que-2	(a)	Draw only 8085 microprocessor bus structure. 03
	(b)	Explain how address and data buses are de-multiplexed in 8085 microprocessor with diagram. 04
	(c)	Interface 4 K RAM memory with 8085 microprocessor. 07
		OR
	(c)	Draw the timing diagram of MOV instruction in 8051. 07
Que-3	(a)	Explain PSW register of 8051 microcontroller. 03
	(b)	Explain Stack of 8051 microcontroller with suitable instruction. 04
	(c)	With suitable example, various addressing modes of data transfer in 8051. 07
		OR
Que-3	(a)	Compare MOV, MOVX and MOVC instruction. 03
	(b)	Briefly discuss EQU and DB assembly directives with suitable example.. 04
	(c)	Explain TMOD and TCON SFRs in 8051 with modes of operation of timer. 07
Que-4	(a)	With suitable circuit diagram, explain serial communication in 8051. 03
	(b)	Six numbers each 8 bits long are stored in external RAM location 2000h to 2005h. Write a program to find out negative numbers from them and 04

- display the negative number count on Port-0.
- (c) Explain ADC interfacing with 8051. **07**
- OR**
- Q-4** (a) Explain Interrupt Enable (IE) and interrupt priority (IP) register in 8051. **03**
- (b) A group of six numbers each 8 bits long are stored in external RAM location 2000h to 2005h. Write a program to find out the largest number from all locations and display the largest number on Port-0. **04**
- (c) Explain LCD interfacing with 8051. **07**
- Que-5** (a) Explain rotate instructions with example. **03**
- (b) Write a program to generate 1 KHz square wave signal on port-0 pin0. **04**
- (c) Explain with suitable circuit diagram, speed control of a DC motor. **07**
- OR**
- Que-5** (a) Explain LJMP, SJMP and AJMP instructions in 8051. **03**
- (b) Explain frequency measurement program for 8051 microcontroller. **04**
- (c) Explain with suitable circuit diagram, 4X4 matrix keyboard interfacing with 8051. **07**