

GUJARAT TECHNOLOGICAL UNIVERSITY

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

Subject Code:2150907

Date:16/11/2018

Subject Name:Microprocessor and Microcontroller Architecture & 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) Compare Van Neumann and Harvard Architecture.	03
	(b) Define addressing mode. List different addressing modes of 8051 with example.	04
	(c) Draw and explain architectural block diagram of 8051.	07
Q.2	(a) List different modes of Timers and show bit structure of TMOD and TCON register.	03
	(b) Explain PSW register in brief.	04
	(c) Write an Assembly language program to find number of 1's and 0's from a given 8 bit data.	07
	OR	
	(c) Write an Assembly language program to copy block of 8 bit data stored at 40h-44h memory location into 50h-54h Memory locations.	07
Q.3	(a) Explain function of following pins: (A) TRAP (C) HOLD (D) READY	03
	(b) Give Bit format of PSW in 8051. Explain bit significance of each bit.	04
	(c) Prepare a timing diagram for instruction MOV A, B.	07
	OR	
Q.3	(a) For an 8051 system of 11.0592MHZ, Find how long it takes to execute following instructions: DEC R3, LJMP, MUL AB	03
	(b) Write an 8051 C program to turn bit p0.5 on and off 10,000 times.	04
	(c) Write an assembly language program to convert HEX number in unpacked BCD number. Store the result into Memory locations 30H onwards.	07
Q.4	(a) Enlist 8051 interrupts with vector address according to Priority.	03
	(b) Explain IE and IP register in brief.	04
	(c) Write an assembly language program to generate square wave of 50HZ frequency on pin 1.2 using Timer 0, Mode 1 and assume XTAL=11.0592MHZ	07
	OR	
Q.4	(a) Draw logic diagram to generate control signal necessary for interfacing with memory chip.	03
	(b) Explain demultiplexing of Address/data lines in 8085.	04

- (c) Explain Editor, Assembler, Compiler and Linker. **07**
- Q.5** (a) Explain tri state logic devices in brief. **03**
(b) Write a short note on different types of Memory. **04**
(c) Draw and explain LCD interfacing circuit. **07**
- OR**
- Q.5** (a) Compare CISC and RISC processor. **03**
(b) Write a C program for 8051 to transfer letter "A" serially at 9600 baud rate continuously. **04**
(c) Give a complete scheme to interface an 8 bit ADC to 8051 microcontroller. **07**
