# GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER–V (NEW) EXAMINATION – WINTER 2018

Subject Code:2151707   **Date:27/11/2018**

Subject Name:Microcontroller & Interfacing (IC)

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)**	How will interpreter differ than compiler? Explain it briefly	**03**
	(b)	Explain working of ALU + Control unit + ext memory of 8085	**04**
	(c)	Draw and describe Timing diagram for execution of MOV B,25H instruction for 8085 operation with each t-state	**07**
Q.2	**(a)**	Draw DIP-8051 Intel architecture of micro-controller by giving each pin name	**03**
	(b)	Describe with schematic of clock circuit and reset circuit of 8051	**04**
	(c)	Justify the need of logical instruction in microcontroller. Explain ANL, RRC, SWAP and DA instructions.	**07**
		OR	
	(c)	Describe each bit of PSW Register operation. How you represent negative numbers? Give its brief notes.	**07**
Q.3	**(a)**	Why Port 0 required pull up register? Give its technical justification in operation of microcontroller	**03**
	(b)	Write an 8051 C program to convert packed BCD 0x29 to ASCII and display the bytes on P1 and P2.	**04**
	(c)	Prepare Assembly language program (ALP) Assume that RAM locations 20 – 24H have the following values. Write a program to find the sum of the values using ADDC. At the end of the program, register A should contain the low byte and R7 the high byte. 20 = (7D), 21 = (EB).22 = (C5),23 = (5B), 24 = (30)	**07**
		OR	
Q.3	**(a)**	What is Pointer? How many pointers are available in 8051 microcontroller? Describe its working briefly.	**03**
	(b)	Write an 8051 C program to get a byte of data form P0. If it is less than 100, send it to P1; otherwise, send it to P2.	**04**
	(c)	Write a program to get the value from ADC by Port P1 multiply it with 04H and send it to LED display by Port P2, Continuously.	**07**
Q.4	**(a)**	What are directives of assembly language? Describe each of all	**03**
	(b)	Prepare Assembly language program (ALP) to generate 50 milisec time delays using 11.0592MHz clock.	**04**
	(c)	Draw and describe schematic of memory interfacing 16K x 8 bit RAM, 16K x 8 bit ROM and 16K x 8 bit Program ROM with 8051(8031).	**07**
		OR	
Q.4	**(a)**	Is special function register SBUF bit addressable? Briefly explain its working in connection of microcontroller data communication	**03**

(b) Draw and explain each bit of SCON and PCON registers.   **04**

(c) Assume that the 8051 serial port is connected to the COM port of   **07**
IBM PC, and on the PC, we are using the terminal.exe program to
send and receive data serially. P1 and P2 of the 8051 are connected
to LEDs and switches, respectively. Write an 8051 program to (a)
send to PC the message "We Are Ready", (b) receive any data send
by PC and put it on LEDs connected to P1, and (c) get data on
switches connected to P2 and send it to PC serially. The program
should perform part (a) once, but parts (b) and (c) continuously,
use 4800 baud rate
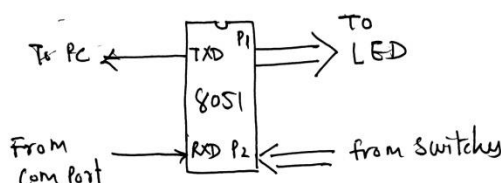
Q.5	**(a)**	Draw TCON and IE Register and describe each bit,	**03**
	(b)	Explain edge trigger interrupt INT0 and INT1 activation.	**04**
	(c)	Draw and describe schematic of ADC0804 interfacing with 8051.	**07**

OR

Q.5	**(a)**	Explain MOVX and MOV C instruction.	**03**
	(b)	Prepare ALP to generate PWM signal to control speed of DC motor.	**04**
	(c)	Draw and describe with ALP to run Variable reluctance Stepper motor with 30 degree step.	**07**

****