Enrollment No: _____ Exam Seat No:_____

C. U. SHAH UNIVERSITY

Winter Examination-2019

Subject Name: Microcontrollers & Its Applications

Subject Code: 4TE05MCA1 Branch: B.Tech (EC)

Semester: 5 Date: 16/11/2019 Time: 10:30 To 01:30 Marks: 70

Instructions:

(1) Use of Programmable calculator & any other electronic instrument is prohibited.
(2) Instructions written on main answer book are strictly to be obeyed.
(3) Draw neat diagrams and figures (if necessary) at right places.
(4) Assume suitable data if needed.

Q-1 Attempt the following questions (14)

a) State any two points which differentiates µC from µP.
b) Which type of oscillator circuit is used by 8051 µC?
c) Calculate the time required for on machine cycle for 8051 µC which operates at 12MHz frequency.
d) How many clock signals possessed by one T-state in 8051 µC?
e) State the name flag which is not possessed by 8051 µC in compare with 8085 µP
f) Which source of pulses used when we used timer/counter circuit used as a counter?
g) Which SFR contains timer run bits?
h) Which SFR contains timer / counter operation selection bits?
i) How many SBUF physically available?
j) Which bit of which SFR must be set to enable all interrupts?
k) Which instruction is used for putting value of any SFR on stack memory?
l) State the single instruction to move data from internal / external ROM.
m) Write a single instruction to double given data bye value stored in register A.
n) Write a single instruction to exchange lower and upper nibble of given data byte.

Attempt any four questions from Q-2 to Q-8

Q-2 Attempt all questions (14)

a) Draw the internal architecture of 8051 µC. explain in detail with diagram PSW SFR. **07**
b) Draw and explain internal circuitry of Port-2 and Port-3. **07**

Q-3 Attempt all questions (14)

a) Explain in detail with diagram internal RAM organization of 8051 microcontroller. **07**
b) Explain in detail with diagrams stack operation using PUSH and POP instructions. **07**

Q-4 Attempt all questions (14)

a) Explain in detail SCON and PCON SFRs with diagrams. **07**
b) Draw the timer/counter logic circuit. Explain in detail with diagrams timer modes 0 and 2. **07**

Q-5 Attempt all questions (14)

a) Explain in detail with examples different data transfer instructions. **07**

	b)	Write an ALP to add two 32-bit data. Assume result is more than 32-bit.	**07**
Q-6		**Attempt all questions**	**(14)**
	a)	Explain in detail with examples different bit / byte logical instructions.	**07**
	b)	Write an ALP to find out odd number from the given array of 8-bit data.	**07**
Q-7		**Attempt all questions**	**(14)**
	a)	Explain in detail with examples different bit/byte JUMP instructions.	**07**
	b)	Write a C program for 8051 to transfer the message "WHY CCET?" serially at 4800 baud rate continuously. Use 8-bit data and 1 stop bit.	**07**
Q-8		**Attempt all questions**	**(14)**
	a)	Write an 8051 C program to toggle only pin P1.0 continuously every 100 ms. Use Timer 0, mode 2 (8-bit auto-reload) to create the delay.	**07**
	b)	Draw pin diagram of LCD and explain in brief each of them in detail. Draw the interfacing diagram of 16X2 LCD with 8051 microcontroller.	**07**