

# C.U.SHAH UNIVERSITY

## Summer Examination-2019

**Subject Name: Microcontroller & Interfacing**

**Subject Code: 4TE04MC11**

**Branch: B.Tech (Electrical)**

**Semester: 4**

**Date: 22/04/2019**

**Time: 02:30 To 5:30**

**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) Which instruction is used to store data in the program memory?  
(A) MOV X (B) MOV C (C) MOV (D) None of these
- b) The number of timers in the 8051 is \_\_\_\_\_.  
(A)4 (B) 2 (C) 8 (D)3
- c) 8085 Microprocessor is based on\_\_\_\_\_ Architecture?  
(A)Von-Neumann (B)Harvard (C)Oxford (D) None of the above
- d) Which of the following is not an instruction of 8051 instructions?  
(A) arithmetic instructions (B) Boolean instructions (C) logical instructions (D) none
- e) The address register for storing the 16-bit addresses can only be  
(A) stack pointer (B) data pointer (C) instruction register (D) accumulator
- f) The idle mode can be terminated by  
(A) PRESET (B) CLEAR (C) interrupt (D) interrupt or reset
- g) How many Bits can be processed simultaneously in the 8085?  
(A) 4 (B) 2 (C) 8 (D) 16
- h) The mnemonic DJNZ stands for\_\_\_\_\_  
(A) Decrement and jump if register $\neq$  0 (B) Decrement and jump if register = 0
- i) Which of the following is an 8 – bit register?  
(A) PSW (B) TCON (C) Accumulator (D) None of these
- j) Which stack is used in 8085?  
(A) FIFO (B) LIFO (C) FILO (D) None of these
- k) Microcontrollers often have \_\_\_\_\_.  
(A) RAM only (B) ROM only (C) CPU only (D) All of the above
- l) What do the mnemonic LCALL and ACALL stand for?
- m) The transmit buffer of serial data buffer is a  
(A) serial-in parallel-out register (B) parallel-in serial-out register (C) serial-in serial -out register (D) parallel-in parallel-out register
- n) The architecture of 8051 consists of  
(A) 4 latches (B) 2 timer registers (C) 4 on-chip I/O ports (D) all of the mentioned



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

- Q-2**      **Attempt all questions**      **(14)**  
(a) Differentiate between Microprocessor and Microcontroller.      **(07)**  
(b) Draw the block diagram of 8085 microprocessor and explain each block in detail      **(07)**
- Q-3**      **Attempt all questions**      **(14)**  
(a) Draw a general block diagram of microcontroller and explain each part in detail.      **(07)**  
(b) Describe TMOD and TCON Special Function registers.      **(07)**
- Q-4**      **Attempt all questions**      **(14)**  
(a) Explain PSW special function register in 8051.      **(07)**  
(b) Draw and explain Internal Port Structure of 8051      **(07)**
- Q-5**      **Attempt all questions**      **(14)**  
(a) What are the addressing modes of 8051 microcontroller? Explain each with examples.      **(07)**  
(b) Explain various modes of timers in 8051.      **(07)**
- Q-6**      **Attempt all questions**      **(14)**  
(a) Explain the interfacing of LCD with 8051 with necessary schematics and code for the interfacing?      **(07)**  
(b) Write a program to generate square wave of on P1.0 of 1kHz. (XTAL=22MHz)      **(07)**
- Q-7**      **Attempt all questions**      **(14)**  
(a) Explain various drive methods, used for driving stepper motors.      **(07)**  
(b) Explain the interfacing of 8051 with 7-Segment LED with suitable diagram.      **(07)**
- Q-8**      **Attempt all questions**      **(14)**  
(a) Write a program with a frequency of 22 MHz, generate a frequency of 100 KHz on pin P2.3. Use Timer 1 in mode 1.      **(07)**  
(b) Explain RS232 handshaking signals.      **(07)**

