C.U.SHAH UNIVERSITY
Summer Examination-2017

Subject Name: Microcontroller & Interfacing
Subject Code: 4TE04MCI1   **Branch: B.Tech (Electrical, IC)**

Semester: 4   **Date: 08/05 /2017**   **Time: 02:00 To 05:00**   **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   In 8085 name the 16 bit registers?
            a) Stack pointer   b) Program   c) a & b
                                counter
  b   Which stack is used in 8085?
                a) FIFO   b) LIFO   c) FILO
  c   What does microprocessor speed depends on?
            a) Clock   b) Data bus width   c) Address bus width
  d   The register that may be used as an operand register is
            a) Accumulator   b) B register   c) Data register   d) Accumulator and B
                                                                                register
  e   The architecture of 8051 consists of
            a) 4 latches   b) 2 timer registers   c) 4 on-chip I/O   d) all of the mentioned
                                                       ports
  f   The transmit buffer of serial data buffer is a
            a) serial-in   b) parallel-in   c) serial-in serial-   d) parallel-in parallel-out
            parallel-out   serial-out register   out register   register
            register
  g   The device that generates the basic timing clock signal for the operation of the circuit
            using crystal oscillator is
            a) timing unit   b) timing and   c) oscillator   a) timing unit
                                control unit
  h   Which of the following is an 8-bit register?
            a) PSW   b) TCON   c) Accumulator   d) all of the mentioned
  i   Among the four groups of register banks, the number of groups that can be accessed at
            a time is
            a) 1   b) 2   c) 3   d) all the four

j Which of the following is not an instruction of 8051 instructions?
   a) arithmetic instructions   b) Boolean instructions   c) logical instructions   d) none

k The idle mode can be terminated by
   a) PRESET   b) CLEAR   c) interrupt   d) interrupt or reset

l The instruction that is used to complement or invert the bit of a bit addressable SFR is
   a) CLR C   b) CPL C   c) CPL Bit   c) CPL Bit

m The higher and lower bytes of a 16-bit register DPTR are represented respectively as
   a) LDPTR and HDPTR   b) DPTRL and DPTRH   c) DPH and DPL   d) HDP and LDP

n The address register for storing the 16-bit addresses can only be
   a) stack pointer   b) data pointer   c) instruction register   d) accumulator

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

Q-2	**Attempt all questions**	**(14)**
A	Sketch the architectural block of 8085 microprocessor and explain each block	
B	Sketch the bus structure of microprocessor and explain data, address and control bus.	
Q-3	**Attempt all questions**	**(14)**
A	Draw a general block diagram of microcontroller and explain each part	
B	What are the addressing modes of 8051 microcontroller? Explain each with examples.	
Q-4	**Attempt all questions**	**(14)**
A	What is stack and stack pointer? Explain working of PUSH and POP instruction with suitable	
B	Describe TMOD and TCON Special Function registers.	
Q-5	**Attempt all questions**	**(14)**
A	Define and describe the directives of 8051 Microcontroller.	
B	Explain various modes of timers in 8051.	
Q-6	**Attempt all questions**	**(14)**
A	Explain following instructions [1] SWAP A [2] ADD A,B [3] DIV AB [4] MUL AB [5] RL A [6] XCHD A,R0 [7] MOV A,@R0	
B	Write a program to Multiply a 16-Bit Number with an 8-Bit Number.	
Q-7	**Attempt all questions**	**(14)**
A	Write a program to store two numbers in registers R0 and R1 and verify if their sum is greater than FFH.	
B	Write a program to subtract 156F83H from 24759CH save the result In RAM location starting at 50H.	
Q-8	**Attempt all questions**	**(14)**
A	Explain RS232 handshaking signals.	
B	Explain various drive methods, used for driving stepper motors.	