

Enrollment No: \_\_\_\_\_

Exam Seat No: \_\_\_\_\_

# C.U.SHAH UNIVERSITY

## Winter Examination-2015

**Subject Name : Microcontroller & Interfacing**

**Subject Code :4TE04MCI1**

**Branch : B.Tech (EE, IC)**

**Semester : IV**

**Date :20/11/2015**

**Time :2:30To5:30**

**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.
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**Q-1**

**Attempt the following questions:**

**(14)**

- a) In 8051 an external interrupt 1 vector address is of \_\_\_\_\_ and causes of interrupt if \_\_\_\_.
  - a) 000BH, a high to low transition on pin INT1
  - b) 001BH, a low to high transition on pin INT1
  - c) 0013H, a high to low transition on pin INT1
  - d) 0023H, a low to high transition on pin INT1
- b) Serial port vector address is of \_\_\_\_\_. And causes an interrupt when \_\_\_\_\_.
  - a) 0013H, either TI or RI flag is set
  - b) 0023H, either TI or RI flag is reset
  - c) 0013H, either TI or RI flag is reset
  - d) 0023H, either TI or RI flag is set
- c) In microcontroller and LCD interface which line will instruct the LCD that microcontroller is sending data?
  - a) DB0 b) RW
  - c) EN d) RS
- d) 8051 series of micro controllers are made by which of the following companies?
  - a) Atmel b) Philips
  - c) none of the mentioned d) both of the mentioned
- e) 8051 series has how many 16 bit registers?
  - a) 2 b) 3
  - c) 1 d) 0
- f) When the micro controller executes some arithmetic operations, then the flag bits of which register are affected?
  - a) PSW b) SP
  - c) DPTR d) PC



- g) How are the bits of the register PSW affected if we select Bank2 of 8051?  
 a) PSW.5=0 and PSW.4=1 b) PSW.2=0 and PSW.3=1  
 c) PSW.3=1 and PSW.4=1 d) PSW.3=0 and PSW.4=1
- h) On power up, the 8051 uses which RAM locations for register R0- R7  
 a) 00-2F b) 00-07  
 c) 00-7F d) 00-0F
- i) How many bytes of bit addressable memory is present in 8051 based micro controllers?  
 a) 8 bytes b) 32 bytes  
 c) 16 bytes d) 128 bytes
- j) In serial communication modes, mode 1 the Baud rate =  
 a)  $BR=2SMOD/32 * (\text{Timer 0 over flow rate})$   
 b)  $BR=2SMOD/16 * (\text{Timer 1 over flow rate})$   
 c)  $BR=2SMOD/16 * (\text{Timer 0 over flow rate})$   
 d)  $BR=2SMOD/32 * (\text{Timer 1 over flow rate})$
- k) How is the status of the carry, auxiliary carry and parity flag affected if write instruction  
 MOV A,#9C  
 ADD A,#64H  
 a) CY=0,AC=0,P=0 b) CY=1,AC=1,P=0  
 c) CY=0,AC=1,P=0 d) CY=1,AC=1,P=1
- l) 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
- m) The register that can be used as a scratch pad is  
 a) Accumulator b) B register  
 c) Data register d) Accumulator and B register
- n) The register that provides control and status information about serial port is  
 a) IP b) IE  
 c) TSCON d) PCON and SCON

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

- Q-2 Attempt all questions (14)**  
 (A) Explain the difference between Microcontroller and Microprocessor? (07)  
 (B) Enlist various Addressing modes of 8051 Microcontroller and explain any one in detail? (07)
- Q-3 Attempt all questions (14)**  
 (A) Draw and explain Pin diagram of 8051 microcontroller? (07)  
 (B) Explain the interfacing of RS 232 and 8051 Microcontroller? (07)
- Q-4 Attempt all questions (14)**  
 (A) Draw and explain the Architecture of 8051 Microcontroller? (07)  
 (B) What is the difference between jump and call and also describe different types of jump and call instruction with its range? (07)
- Q-5 Attempt all questions (14)**  
 (A) Design a counter for counting the pulses of an input signals. The pulses to be counted are fed to Pin p3.4. XTAL=22MHz? (07)  
 (B) Explain Serial Programming of 8051 with suitable example to receive and (07)



- transfer the data?
- Q-6** **Attempt all questions** (14)
- (A) Explain Bit Addressable Memory of 8051 and its application for interfacing with suitable example? (07)
- (B) Write a Short note on Flash Controller and its applications? (07)
- Q-7** **Attempt all questions** (14)
- (A) Draw the schematic to interface Stepper Motor with 8051 Microcontroller and also write down the corresponding program for interface?
- Q-8** **Attempt all questions** (14)
- (A) Draw and explain architecture of 8085 and explain its memory interfacing with suitable example?

