

## Bachelor of Science B.Sc. Semester-VI Examination

## MICROCONTROLLER

## Optional Paper-2

## Electronics

Time : Three Hours]

[Maximum Marks : 80

N.B. :— (1) ALL questions are compulsory and carry equal marks.

(2) Draw neat and labelled diagram wherever necessary.

## 1. EITHER

(A) Enlist various features of 8051 microcontroller. Explain internal and external memory organisation of 8051 microcontroller. 5+5

OR

(B) Explain flag register of 8051 microcontroller. Explain the function of IE and TCON special function registers of 8051 microcontroller. 4+6

## 2. EITHER

(A) Explain MOV, MOVX and MOVC instructions of 8051 microcontroller with example of each. Explain any two addressing modes of instructions of 8051 microcontroller with example. 6+4

OR

(B) Explain following arithmetic instructions of 8051 microcontroller :

(i) ADDC (ii) SUBB (iii) MUL (iv) DIV

What do you mean by interrupt handler ?

8+2

## 3. EITHER

(A) What is subroutine ? Explain delay calculation 1 sec. using 12 MHz clock frequency by writing delay subroutine. 2+8

OR

(B) Explain SJMP, AJMP and LJMP instructions of 8051 microcontroller.

What is stack ? Explain the use of stack during PUSH and POP instructions of 8051.

6+4

## 4. EITHER

(A) Draw the diagram of  $16 \times 2$  LCD module indicating various pins of it.

Explain how  $16 \times 2$  LCD display can be interfaced with 8051 microcontroller.

4+6

OR

(B) Explain interfacing of simple keyboard with 8051. Explain interfacing of ADC with 8051 microcontroller.

5+5

5. Attempt any ten :

- (A) Explain the function  $\overline{EA}$  pin of 8051.
- (B) Which ports of 8051 are used in address bus ?
- (C) What is the use of DPTR in 8051 ?
- (D) Explain the use of DAA instruction of 8051.
- (E) What will be the content of program counter of 8051 after reset ?
- (F) Which registers are allowed in indirect addressing mode for generation of address ?
- (G) Why stack pointer register SP of 8051 is of 8-bits ?
- (H) What is the use of RETI instruction ?
- (I) What do you mean by nesting of subroutines ?
- (J) What is interfacing ?
- (K) What is the use of RxD and TxD pins of 8051 ?
- (L) What is serial communication ?

1×10