NKT/KS/17/5219

Bachelor of Science (B.Sc.) Semester—VI (C.B.S.) Examination
MICROCONTROLLER
Paper—2
(Electronics)

Time : Three Hours]   [Maximum Marks : 50

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

(2) Draw well labelled diagrams wherever necessary.

EITHER

1. (A) Explain the difference between microprocessor and microcontroller. Draw the internal architecture of 8051. Explain data pointer register and register bank of 8051 microcontroller.   4+2+4

OR

(B) What are SFR register ? Explain IE Register and SCON.   2+4+4

EITHER

2. (A) Explain the following instruction with the help of an example :—

mov @ Ri, # X

mov DPTR, #X

Push Rx

Mul AB

Dec @ Ri.   10

OR

(B) Explain what will happen in the following program after execution of each step :

Mov A, # 036H.

Mov R2, # 068H.

Mov @ A, R2

ADD A, R2

CLR C

SUBB A, # 079H

$ END.

Explain direct addressing mode, Immediate addressing mode, indexed addressing mode with the help of an example.   4+6

NXO—16177   1   (Contd.)

EITHER

3. (A) Explain Short Jump, Absolute Jump and Long Jump instruction with the help of an example. Write a subroutine which introduce a delay of 1 mS. Assume clock pulse of 12 MHz. 5+5

OR

(B) Explain the following Jump instruction with the help of example :—

   (i)   CJNE A, Rx, Relative

   (ii) DJNZ. Rn, Relative

   (iii) JBC bit, Relative.

   Explain nesting of subroutine with suitable example. 6+4

EITHER

4. (A) State and explain pin configuration of 16×2 LCD module. Draw the interfacing circuit of 16×2 LCD module with microcontroller 8051. 8+2

OR

(B) Explain the need of ADC and DAC interfacing to microcontroller. Draw the circuit to interface DAC with microcontroller. 6+4

5. Attempt any **TEN** :—

   (A) Draw flag register of 8051 microcontroller.

   (B) Under what condition is the OV flag affected in 8051 ?

   (C) State the default priority of the interrupts of 8051 μC.

   (D) State the ISS location for INTO interrupt.

   (E) Explain MOVC A; @ A + DPTR instruction.

   (F) Write two arithmetic operation of 8051.

   (G) What is the default stack location of 8051 μC ?

   (H) What is the importance of Return instruction ?

   (I) What is the difference between Call and Jump instruction ?

   (J) What do you understand by Scanning display ?

   (K) Which two pins of μC 8051 are used for serial data transfer ?

   (L) Explain the need of interfacing. 1×10=10