Bachelor of Science (B.Sc.) Semester–VI Examination

MICROCONTROLLER

Optional Paper–2

(Electronics)

Time : Three Hours]　　　　　　　　　　　　　　　　　[Maximum Marks : 50

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

　　　　 (2)　Draw neat and labelled diagrams wherever necessary.

EITHER

1.　(A)　Draw internal architecture of 8051 microcontroller and explain each block.　　10

　　OR

　　(B)　Explain memory organisation of lower 128 bytes of internal RAM of 8051. Explain the functions of PCON SFR of 8051.　　7+3

EITHER

2.　(A)　Explain following arithmetic instructions of 8051 microcontroller :

　　　　(i)　ADD A, @ R_1

　　　　(ii)　SUBB A, 45H

　　　　Explain MOV, MOVC and MOVX instructions of 8051 microcontroller with suitable example.　　4+6

　　OR

　　(B)　Explain how 8051 microcontroller handles interrupts.　　10

EITHER

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

　　　　Explain PUSH and POP instructions of 8051.　　6+4

　　OR

　　(B)　Explain the need of subroutine.

　　　　Explain ACALL and LCALL instructions of 8051 microcontroller.

　　　　Explain following instructions of 8051 microcontroller :

　　　　(i)　DJNZ

　　　　(ii)　CJNE　　1+5+4

EITHER

4. (A) Explain interfacing of 4×4 matrix type keyboard with 8051 µc.   4+6

Explain how 8051 µc can be interfaced with personal computer.

OR

(B) Explain interfacing of 16×2 LCD display with 8051 microcontroller.   6+4

Explain interfacing of DAC with 8051 microcontroller.

5. Attempt any **ten** :

(A) Which ports of 8051 microcontroller are used in address bus ?

(B) What is the function of PC register in 8051 ?

(C) How many register banks are there in 8051 ?

(D) Explain the use of SETB instruction of 8051.

(E) What do you mean by addressing modes ?

(F) Explain SWAP instruction of 8051.

(G) What is Stack ?

(H) What is the use of RET instruction in 8051 ?

(I) What is the default value of SP register ?

(J) What is interfacing ?

(K) What is the advantage of matrix type keyboard ?   1×10

(L) What is serial communication ?

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