Bachelor of Science (B.Sc.) Semester—VI (C.B.S.) Examination

MICRO-CONTROLLER

Paper—2

(Electronics)

Time : Three Hours] [Maximum Marks : 50

N.B. :— (1) **All** questions are compulsory and carry equal marks.
(2) Draw neat diagrams wherever necessary.

EITHER

1. (A) (i) Explain the Register Banks of 8051 Micro-Controller.
(ii) What are Special Function Registers ? Explain the SFRS of 8051 Micro-Controller. 5+5

OR

(B) (i) With suitable examples, explain the function of CY and OV flags.
(ii) State the functions of the following pins :
(a) ALE
(b) $\overline{EA}$
(c) $\overline{PSEN}$
(d) RST
(e) TDX. 5+5

EITHER

2. (A) Describe the interrupts and their handling in the 8051 Micro-controller. 10

OR

(B) (i) With a suitable example, explain Base + Index Register – Indirect Addressing Mode
(ii) Write a simple ALP to swap the lower and upper nibble of the accumulator data. 5+5

EITHER

3. (A) Explain the function of the following instructions :
(i) SJMP
(ii) LJMP
(iii) DJNZ
(iv) CJNE
(v) JMP @ A+DPTR
Write a simple ALP to AND the bytes of R_0 and R_1 register and copy result in R_2 register. 5+5

OR

(B) (i) What is the need for subroutines ?
(ii) Explain ACALL instruction.
(iii) Write a subroutine for delay. 2+4+4

EITHER

4. (A) Explain ADC and DAC interfacing. 10

OR

(B) Explain 4 × 4 keyboard interfacing. 10

5. Attempt any **TEN** :

(A) Write one point of difference between CISC and RISC microcontrollers.

(B) Give the difference between program and data memory.

(C) What is the function of B-Register ?

(D) Give two examples of Boolean Variable Manipulation Instruction.

(E) Give the difference between MOV and MOVX instructions.

(F) Which mode of addressing is used for SFRs ?

(G) What is the content of SP after executing both the instructions ?

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MOV SP, # A2H
POP THO
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(H) Define subroutine Nesting.

(I) What is the need of branching in a program ?

(J) What is the advantage of using LCD display over LED display ?

(K) Draw the bit functions of SCON register.

(L) Define Baud rate. 1×10=10