M.Sc. 4th Semester Examination, 2024

ELECTRONICS

(*Microprocessor and Microcontrollers Lab*)

[Practical]

PAPER — ELC-495(Pr.)(Old)

Full Marks : 50

Time : 3 hours

Answer **all** questions

The figures in the right hand margin indicate marks

Answer any **one** question from the following selecting it by a lucky draw :

1. Write an assembly language program to find the smallest number in a given array of 10 numbers. The array is stored in the memory locations starting from *X100 H onwards.*

Store the result at the memory locations starting from X200 H. Repeat the experiment with three different arrays.

2. The memory locations X100 H & X101 H contain two 8-bit numbers, among them one is the dividend (x) and another is the divisor (y). Write an assembly language program to divide x by y. Store the quotient & the remainder in the memory locations X102 H & X103 H. Repeat the experiment for five different numbers.

3. Write an assembly language program to convert a BCD number stored in memory location X200 H into its equivalent binary number. Store the result in memory location X300 H. Repeat the experiment for five different numbers.

4. Write an assembly language program to arrange 10 bytes of data in ascending order. The data

are stored in the memory locations starting from XX00 H. Store the results in the memory locations starting from the memory locations XX50 H. Repeat the experiment for three sets of data.

5. Write an assembly language program to multiply two 8-bit numbers stored in memory locations X100 H & X101 H. Keep provision to store the result if it is 16-bit and store them in the memory locations X102 H & X103 H. Repeat the experiment for five different numbers.

6. Write an assembly language program to convert an 8-bit binary number into its equivalent Gray code. The binary number is to be stored in memory location X100 H and the result is to be stored in memory location X101 H. Repeat the experiment with five different numbers.

7. Write an assembly language program to add two 8-bit numbers stored at two consecutive memory locations X100 H & X101 H, respectively and store the result in memory locations X102 H & X103 H, which may contain carry.

8. Write an assembly language program to transfer a block of eight data stored in memory locations X500 H to X507 H. The data are to be stored in the locations starting from X700 H to X707 H in reverse order. Repeat the experiment for three sets of data.

9. Write an assembly language program to find 2's complement of a 16-bit number. Repeat the experiment for five numbers.

10. Write an assembly language program to calculate the square of a given number (<16) using the following algorithm :

Step 1 : Square = 0, P = Given number, X=1
Step 2 : Square = Square + X

Step 3 : P=P−1.
Step 4 : If P = 0, then go to Step 6
Step 5 : x = x+2, goto Step 2
Step 6 : Store the Square Value
Step 7 : Terminate

Repeat the experiment for 5 sets of data.

Distribution of Marks

Experiment :	35 marks
Viva voce :	10 marks
Laboratory notebook :	05 marks
Total :	50 marks

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