

M.Sc. 4th Semester Examination, 2025

ELECTRONICS

(Microprocessor and Microcontrollers Lab)

[Practical]

PAPER – ELC-495

Full Marks : 50

Time : 3 hours

Answer any one question

The figures in the right hand margin indicate marks

Candidates are required to give their answers in their own words as far as practicable

1. The memory locations X200 H & X201H contain two 8-bit numbers; among them, one is a dividend (p) and another is a divisor (q). Write an assembly language program to divide p by q. Store the quotient & the remainder

(Turn Over)

in the memory locations X202 H & X203 H. Perform the experiment for three different sets of numbers.

2. Write an assembly language program to find the largest number in a given array of ten numbers. The array is stored in the memory locations starting from X200 H onwards. Store the result at the memory locations starting from X300 H. Repeat the experiment with two different arrays.
3. Write an assembly language program to add two 8-bit numbers stored at two consecutive memory locations X200 H & X201 H, respectively, and store the result in memory locations X202 H & X203 H, which may contain carry.
4. 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 X300 H and the result is to be stored in memory location X301 H. Repeat the experiment with three different numbers.

5. Write an assembly language program to convert a BCD number stored in memory location X100 H into its equivalent binary number. Store the result in memory location X150 H. Repeat the experiment for three different numbers.
6. Write an assembly language program to compute the 1's complement of a number stored at X150H. Store the result in X151H. Repeat for five values.
7. Write an assembly language program to find the minimum of five numbers stored at X130H, X131H, X132H, X133H and X134H. Store the result at X135H.

8. Write an assembly language program to sort ten numbers in descending order stored from memory location X250H. Store the result from X350H.
9. Write an assembly language program to count the number of even numbers in an array of ten elements starting at X140H. Store the count in X150H.
10. Write an assembly language program to multiply two 8-bit numbers using repeated addition. Store inputs at X130H and X131H, result at X132H and X133H.
11. Write an assembly language program to transfer a block of ten data stored in memory locations X300 H to X309 H. The data are to be stored in the locations starting from X200 H to X209 H in reverse order. Repeat the experiment for three sets of data.
12. Write a program in 8085 to perform subtraction of two 16-bit numbers. Store the result in X150H and X151H.

13. Write an Arduino program to display the sensor value from the LDR on the serial monitor. Draw the circuit.
14. Write an Arduino program to blink an LED at a 10-second interval. Draw the circuit.
15. Write an Arduino program to control the direction of a servo motor from 0° to 180° . Draw the interfacing circuit.

Distribution of Marks

Program writing :	10 marks
Execution :	15 marks
Result :	10 marks
Viva-voce :	10 marks
Laboratory notebook :	05 marks

Total : 50 marks

