18. List and show the results of any 10 library functions with their prototype.

19. Write a program to arrange the set of given numbers in ascending order using functions with call by reference method.

20. Write a program that prints only those lines from a created text file which are containing more than 80 characters.

BCS11 — DIGITAL LOGIC AND PROGRAMMING IN C

Time : Three hours   Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL questions.

1. What is the feature of gray code?

2. List and draw the universal gates structure.

3. What is the function of demulitplexer?

4. Define and mention the uses of counters.

5. List the types of tokens in C.

6. Give an example of do while statement with its flow diagram.

7. Give two applications that can be solved with recursion concept.

8. Mention the uses of register variables.

9. Give the arithmetic operations of pointer variables.

10. List the errors occurring during I/O operations.

SECTION B — (5 × 5 = 25 marks)

Answer ALL questions.

11. (a) State and prove any five Boolean Laws.

Or

(b) Find the minimum SOP expression using K-map for the function f = Σm (7, 9, 10, 11, 12, 13, 14, 15).

12. (a) Design a half adder using NAND gates.

Or

(b) Draw the circuit and show the operation of RS flip-flop.

13. (a) Describe any five expression types with example.

Or

(b) Write a program to check a letter is vowel or not using switch statement.

14. (a) Show the usage of multidimensional arrays with an application.

Or

(b) Show how to define structure and union and declare variables to them. Also compare them.

15. (a) State and explain the file opening and closing commands in C with examples.

Or

(b) What is command line argument? What is the use of it? Show its execution with an example.

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. (a) Determine the decimal value of the fractional binary number 0.1011.

(b) Perform 2's complement subtraction of 010110-100101.

(c) Convert $(53)_{10}$ to EX-3 code.

17. (a) What are the different types of flip-flop? Draw the circuits of any four of them.

(b) Give the comparison between combinational circuits and sequential circuits.