19. Write a program to find the value of nCr using functions with call by reference.

20. Explain any five primary functions involving in file operations. Write a program to show how to create and access the data file.

4   **1892**

BCS11 — DIGITAL LOGIC AND PROGRAMMING IN C

Time : Three hours   Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Determine the decimal value of the fractional binary number 0.1011.

2. Give any four Boolean Laws

3. Mention the uses of multiplexer.

4. What are the classifications of sequential circuits?

5. What is symbolic constant? Give example.

6. Give an example of switch statement with its flow diagram.

7. How to declare and initialize multi dimensional arrays?

8. What is self referential structures?

9. Define pointer. How to declare pointer variable?

10. What is command line argument? What is the use of it?

SECTION B — (5 × 5 = 25 marks)

Answer ALL questions.

11. (a) (i) Perform 2's complement subtraction on 010110-100101.

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

Or

    (b) Expand the function $f(A, B, C) = A + B'C$ to standard SOP form.

12. (a) Explain the operation of 3 to 8 decoder.

Or

    (b) Define – Shift Registers. What are the types of shift register?

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

Or

    (b) Explain the difference between continue and break statements with suitable examples.

14. (a) Write a program to find the fibanacci series using recursion.

Or

    (b) What is storage class? Explain any two of them with examples.

15. (a) Describe the arithmetic operations of pointer variables.

Or

    (b) Explain how to handle error during I/O operations.

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Reduce the Boolean function using k-map technique and implement using gates $f(w, x, y, z) = \Sigma m\,(0, 1, 4, 8, 9, 10)$ which has the don't cares condition $d(w, x, y, z) = \Sigma m\,(2, 11)$.

17. (a) Realize a JK flip flop using RS flip flop.

    (b) Realize a RS flip flop using NAND gates and explain its operation.

18. (a) Explain any five string operations with necessary examples.

    (b) Write a program to find the sum of cube of first 10 natural numbers using FOR statement.