Register Number [ ][ ][ ][ ][ ][ ][ ][ ][ ][ ] Code: **20CS11T**

I Semester Diploma Examination, Nov/Dec 2024

FUNDAMENTALS OF COMPUTER

TIME: **3 HOURS**   MAX MARKS: **100**

Instructions:
(i) Answer **any one full** question from each section - **I, II, III, IV and V.**
(ii) Each **one full** question carries **20 marks**.

SECTION - I

1. a) Explain different types of number system.   10

   b) Convert the following: 6
      i) $(1101101)_2$ to decimal
      ii) $(19)_{10}$ to binary

   c) Explain ASCII code with an example.   4

2. a) Explain NAND and NOR gates with truth table & logic diagram.   10

   b) List five rules of Boolean Algebra.   5

   c) State and prove DeMorgan's first theorem.   5

SECTION - II

3. a) Explain working of full adder with truth table, logic symbol and logic circuit diagram.   10

   b) i) Find 1's complement of $(10111010)_2$ 5
      ii) Find 2's complement of $(1011)_2$

   c) List different types of flip flops.   5

4. a) Explain working of 4:1 multiplexer.   10

   b) List the laws of Boolean algebra with expressions.   5

   c) List applications of Counters.   5

SECTION - III

5. a) Construct 4 bit SISO shift register.   10

    b) Explain functional units of a computer with a neat diagram.   10

6. a) List the applications of Decoder.   5

    b) Write differences between Combinational and Sequential circuits.   5

    c) Describe working of keyboard with a diagram.   10

SECTION - IV

7. a) Define Computer Network.List different categories of computer networks.   5

    b) Define Operating System.Explain any two types of operating systems.   10

    c) Differentiate between UEFI and BIOS.   5

8. a) Explain memory hierarchy with a diagram.   10

    b) Explain any five functions of operating systems.   5

    c) List any five applications of Computer.   5

SECTION - V

9. a) List different flowchart symbols with symbol names.   5

    b) Explain any five rules for defining variable names.   5

    c) Write an algorithm and draw a flowchart to find largest of 2 numbers.   10

10. a) Identify the following as valid or invalid variable names by applying variable naming rules: 5
    i) x6   ii) 6xyz   iii) Program   iv) prog*1   v) prog_2

    b) Explain Stored program concept.   5

    c) Write an algorithm and draw a flowchart to find if a given number is odd or even.   10

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