QP-Code : 20CS11T

Makeup Examination – Sept. 2023
I Semester Diploma Examination

FUNDAMENTALS OF COMPUTER (20CS11T)

Exam Date / Time: 20th Sep. 2023 / 2.00 PM

Time: 3 Hours

Max.Marks: 100

Instructions: (1) Answer **one** full question from each section.

(2) One full question carries **20** marks.

SECTION - I

1. a) Define number system? Explain the characteristics of number system. **10**

   b) Convert the following: **6**

      i) Binary to Decimal :$(11101)_2$

      ii) Decimal to Binary: $(456)_{10}$

      iii) Decimal to Octal :$(567)_{10}$

   c) i) Find 1'S complement of 11000011111_2

      ii) Find 2'S complement of 11000100_2 **4**

2. a) Explain the following terms: **10**

      i) BCD

      ii) EBCDIC

      iii) ASCII

      iv) UNICODE

      v) GRAY CODE

   b) Define Logic gates. Explain universal gates with logic symbol, expressions and truth table. **10**

SECTION – II

3. a) State the Laws and Rules of Boolean algebra. **10**

   b) Describe full adder with logic diagram and truth table. **10**

4. a) List the different types of Flip-flops. **4**

   b) Describe 4:1 multiplexer with logic circuit and truth table. **6**

c) Differentiate between combinational circuit and sequential circuit. 6

d) Apply Boolean algebra rules/laws and prove (A+B) (A+C) = A + BC 4

SECTION – III

5. a) Construct a 4-bit SIPO (Serial in Parallel Out) shift register with logic circuit. 10

b) Discuss the applications of counters. 5

c) Illustrate 4-bit comparator with block diagram. 5

6. a) List and explain different generation of computers. 10

b) List any FIVE applications of computers. 5

c) Illustrate the working of keyboard with a neat diagram. 5

SECTION – IV

7. a) Define Computer network. Explain the different categories of computer network. 10

b) Arrange different types of memory in hierarchy of increasing access of speed and cost. 6

c) Differentiate between multi user operating system and multiprocessor operating system. 4

8. a) List and explain Flynn's Classification of Computers. 5

b) Differentiate between BIOS and UEFI . 5

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

SECTION – V

9. a) Define variable. Mention the rules of naming variables. 5

b) Raj has to reach his college at 9:00 am. If he leaves his house before 8:00 am, he will go by walk, otherwise he takes a bus. Draw a flow chart for this given Scenario, to output how to travel. 5

c) Explain the stored programming concept. 5

d) A user enters the input. Write an algorithm to check whether entered input is a character or a number. 5

10. a) Define FLOW chart. Explain the different symbols used in flow chart. 10

b) Draw a flowchart to accept the age of a person & check whether he/she is eligible to vote. A person can vote if age is greater than or equal to 18. A person cannot vote if age is less than 18. 5

c) Write an algorithm to find the area of a triangle with its base and height as input. 5