200

Code : 20CS11T

I Semester Diploma Examination, Oct./Nov.-2021

FUNDAMENTALS OF COMPUTER

[Max. Marks : 100

e : 3 Hours]

ial Note : Students can answer for max. of 100 marks, selecting any subsection from any main section.

SECTION – 1

(a) Define number system. Explain the characteristics of number system.   10

(b) Convert the following :   10
   (i) Binary to Decimal : 11101_2
   (ii) Decimal to Binary : 456_{10}
   (iii) Binary to Octal : 10001_2
   (iv) Decimal to Octal : 567_{10}
   (v) Hexadecimal to Decimal : $7AC_{16}$

(a) Explain the following terms :   10
   (i) BCD
   (ii) EBCDIC
   (iii) ASCII
   (iv) UNICODE
   (v) GRAY CODE

(b) Draw a circuit to realize the expressions using AND gates, OR gates and Invertors and write truth table $Y = \overline{(\overline{A} \cdot B)} + (A \cdot \overline{B})$.   10

SECTION – 2

(a) State the laws and rules of Boolean Algebra.   10

(b) Describe half adder with logic diagram and truth table.   10

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4. (a) Describe a 4 – to – 1 multiplexer.
    (b) List different types of flip-flops.
    (c) Explain D-flip flop with truth table and logic symbol and logic circuit.

SECTION – 3

5. (a) Discuss the applications of counters.
    (b) What is decoder ? Identify its applications.
    (c) Construct a 4 bit SIPO (Serial In Parallel Out) Shift register with logic circuit

6. (a) (i) Discuss the characteristics of computers.
        (ii) List various applications of computers.
    (b) List and explain different categories of computer networks.

SECTION – 4

7. (a) Explain the following :
        (i) Single user programming
        (ii) Multi programming
    (b) List and explain Flynn's classification of computers.
    (c) Briefly explain BIOS.

8. (a) Explain memory hierarchy with a diagram.
    (b) Describe the functions of
        (i) Real time operating system
        (ii) Mobile operating system

SECTION – 5

9. (a) Draw the block diagram of a computer and examine the working of functional units.
    (b) Draw a flow chart to accept the age of a person and check whether he/she is a child, teenager or an adult. A person is a child if the age is less than or equal to 14. A person is a teenager if the age is between 15 and 17. A person is an adult if the age is greater than or equal to 18.

10. (a) Define flowchart. Explain different symbols used in flowchart.
    (b) Write an algorithm for finding largest of 3 numbers.

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