2021
BCA
[HONOURS]
(CBCS)
(B.Sc. First Semester End Examination-2021)
PAPER-C2T

Full Marks: 40   *Time: 02 Hrs*

The figures in the right hand margin indicate marks
Candidates are required to give their answers in their own words as far as practicable
Illustrate the answers wherever necessary

1. **Answer any five questions of the following:**   5x2= 10

   a. Write down the difference between SRAM and DRAM.

   b. Solve the following:

      i) $(1011)_2+(10111)_2=(?)_2$

      ii) $(247)_8+(142)_8=(?)_8$

   c. convert $(201.21)_8=(?)_{10}$

   d. What is Bubbled AND gate?

   e. Simplify the following Expression-

      $(AB+ABC)\square A\bar{B}C$

   f. What is primary memory?

   g. What is the function of multiplexer?

h. Write the name of various type of Flip-flop.

2. Answer any four questions of the following: **5x4 = 20**

a) Write down the comparison between Assembler, compiler and interpreter.

b) Write a short note on CPU of a computer.

c) What is combinational logic circuit? Discuss about half adder.

                                                    1+4

d) Construct the following gates from universal NOR gate:

    i) XOR

    ii) AND

Also write the truth table for each.

e) Find the K-map of XOR and XNOR gate. What is half adder ?

                        2.5+2.5

f) Draw the circuit diagram of decoder (3x8) and find it's Boolean expression.

g) Find 1's and 2's complement of $(-45)_{10}$. Compare between 1's and 2's complement.

h) Short note: J-K flip flop and T flip flop

 3. Answer any one questions of the following: **10x1 = 10**

a)Build an expression and simplify the following function –

$$f(A,B,C) = \prod(0,4,5,6)$$

Also, draw a circuit diagram (using basic gate) of the simplified expression.   5+5

b) Write short note of the following (any four)

    i)Universal gates

    ii) Encoder

    iii) Shift Register

    iv) Ripple Counter

    v) De-multiplexer   2.5x4