2024

BCA

BCA First Semester End Examination - 2024

PAPER - CC102P

Full Marks : 30 *Time : 2 hours*

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.

Answer any one question : **20×1=20**

1. Design a full adder using NAND gates and verify the truth table.
2. Implement $Y=(X+Z).(\bar{X}+Y)$ using basic gates and verify its truth table.
3. Design gray code to BCD code converter and verify the truth table.
4. Design SR F/F using NAND gates.
5. Simplify the following function using K-map and implement using basic gates. $A=\Sigma m(0,5,7,13,14,15)$

6. Design a half adder using NOR gates and verify the truth table.
7. Design a circuit to convert BCD code to Excess-3 code.
8. Design J-K master-slave F/F and verify the truth table
9. Design a 4:1 MUX using NOR gates and verify the truth table.
10. Implement $F=(\bar{A}B+A)(B+A\bar{C})$ using basic gates and verify its truth table.
11. Design a 4 bit shift register using flip flops.
14. Implement $w=\overline{xy}+x+\overline{y+z}$ using only NAND gates and verify the truth table.
13. Implement OR, NOR and X-OR gates using NAND gates and verify the truth table.
14. Implementation of 4-Bit Parellel Adder using 4783 IC.
15. Simplify the following function using K-map and implement using NAND gates. $Y(A,B,C)=\Sigma(0,2,4,5,6)$
16. Design a 2:4 decoder using NAND gates and verify the truth table.
17. Design and implement the logic circuit for half-subtractor. Then verify the truth table.

18. Design and implement the logic circuit for 4:1 MUX using gates. Then verify the truth table.
19. Design and implement the logic circuit for S-R flip flop using NOR/NAND gates. Then verify the truth table.
20. Design an implement the logic circuit for J-K flip flop using NOR/NAND gates. Then verify the truth table.

VIVA - 06

PNB - 04