PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Convert the following decimal into Hexadecimal.
    (i) 286_{10}
    (ii) 16_{10}
    (iii) 1010_{10}

    Or

    (b) Illustrate signed binary number representation with example.

17. (a) Discuss about k-map with don't care condition.

    Or

    (b) Explain Integrated Circuits with neat diagram.

18. (a) Write about Binary Subtractor in detail.

    Or

    (b) Design Binary Full Adder.

19. (a) What is a flip-flop? Explain R-S-Flip-Flop.

    Or

    (b) Explain the Clocked Sequential Circuits.

20. (a) Explain in details about Synchronous Counter.

    Or

    (b) What is ROM? Explain.

———————

Code No. : 20511 E   Sub. Code : CACA 11

B.C.A. (CBCS) DEGREE EXAMINATION, NOVEMBER 2023.

First Semester

Computer Application — Allied

DIGITAL DESIGN

(For those who joined in July 2021-2022)

Time : Three hours   Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. What is the complement of $X'Y'Z$?
   (a) $X + YZ$
   (b) $X' + Y' + Z'$
   (c) $X + Y + Z'$
   (d) XYZ'

2. The octal equivalent of 1100101.001010 is _____
   (a) 624.12
   (b) 145.12
   (c) 154.12
   (d) 145.21

3. A ———— gate gives the output as 1 only if all the inputs signals are 1.

    (a) AND   (b) OR

    (c) EXOR   (d) NOR

4. The Boolean expression of an OR gate is ————.

    (a) $A \cdot B$ (b) $A'B + AB'$

    (c) $A + B$ (d) $A'B'$

5. Number of outputs in a half adder ————.

    (a) 1   (b) 2

    (c) 3   (d) 0

6. The ———— gate is an OR gate followed by a NOT gate.

    (a) NAND   (b) EXOR

    (c) NOR   (d) EXNOR

7. Which of the following are building blocks of encoders?

    (a) NOT gate   (b) OR gate

    (c) AND gate   (d) NAND gate

8. Which of the following can be represented for decoder?

    (a) Combinational circuit

    (b) Sequential circuit

    (c) Logical circuit

    (d) None of the mentioned

9. Which of the following is not a visible register?

    (a) General Purpose Registers

    (b) Address Register

    (c) Status Register

    (d) MAR

10. What kind of a flag is the sign flag?

    (a) General Purpose   (b) Status

    (c) Address   (d) Instruction

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) Discuss about basic Boolean theorem.

            Or

    (b) Write in detail about binary storage.

12. (a) Explain Integrated Circuits with neat diagram.

            Or

    (b) Draw all the gates and explain their functions.

13. (a) Discuss in detail about Binary Multiplier with diagram.

            Or

    (b) What is Exclusive OR? Explain its function and uses.

14. (a) Write in detail about decoders with diagram and truth table.

            Or

    (b) Explain Multiplexers with an example.

15. (a) Write about Ripple Counters with diagram.

            Or

    (b) Discuss about RAM with neat diagram.