PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).
Each answer should not exceed 600 words.

16. (a) Determine the decimal number represented by 101101.10101.

Or

(b) Write down the basic theorem and properties of Boolean algebra.

17. (a) Discuss the symbol and truth table for an NOT Gate.

Or

(b) Compare the four variable map and five variable map.

18. (a) Elaborate the implementation of NAND and NOR.

Or

(b) Illustrate the 4 bit magnitude comparator with neat diagram.

19. (a) Examine the main purpose of sequential circuits.

Or

(b) Outline the need of storage element flip-flops.

20. (a) Draw and explain the implementation of shift register.

Or

(b) Compare the ripple counters and synchronous counters.

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Code No. : 10481 E   Sub. Code : CACA 11

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

First Semester

Computer Application - Allied

DIGITAL DESIGN

(For those who joined in July 2021 onwards)

Time : Three hours   Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Hexadecimal number system has_____ symbols.

   (a) 15   (b) 12

   (c) 16   (d) 10

2. Binary equivalent of decimal 8 is _____

   (a) 111   (b) 1001

   (c) 1000   (d) 10001

3. The 2's complement of 10002 is _____

   (a) 0111   (b) 0101

   (c) 1000   (d) 0001

4. 8421 codes is also called as _____
    (a) Gray code   (b) ASCII code
    (c) Excess 3 - code (d) BCD Code

5. _____ are used for converting one type of number system in to the other form
    (a) Decoder   (b) logic gate
    (c) half adder   (d) Full adder

6. Multiplexer means _____
    (a) One into many   (b) many into one
    (c) many into many   (d) Two into many

7. The output of a 2-input OR the gate is 0 only when it's _____
    (a) both inputs are 0
    (b) either input is 1
    (c) both inputs are 1
    (d) either input is 0

8. When an input electrical signal A= 10100 is applied to a NOT gate, it's output Signal is_____
    (a) 01011   (b) 10101
    (c) 10100   (d) 00101

9. In Boolean algebra A+ AB = _____
    (a) B   (b) A
    (c) AB   (d) A+B

10. General Purpose register built with _____
    (a) TTL   (b) High Speed buffers
    (c) Logic gates   (d) DGA

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).
Each answer should not exceed 250 words

11. (a) Write a note on binary logic.

    Or

    (b) Convert the hexadecimal number E3FA to binary.

12. (a) What are called don't care conditions? Explain.

    Or

    (b) How many entries are there on a four-variable Karnaugh map? Explain.

13. (a) Explain the binary multiplier with neat diagram.

    Or

    (b) Write down the Exclusive OR function.

14. (a) Elaborate the analysis of clocked sequential circuits.

    Or

    (b) Describe the purpose of storage element latches.

15. (a) Summarize the concept of memory decoding.

    Or

    (b) Mention the functions of Random Access Memory.