D 111947 **(Pages : 2)** **Name.....**

Reg. No.....

THIRD SEMESTER (CBCSS–UG) DEGREE EXAMINATION, NOVEMBER 2024

Electronics

ELE 3C 04—DIGITAL ELECTRONICS

(2019—2023 Admissions)

Time : Two Hours Maximum Marks : 60

Part A

All *questions can be answered.*
Each question carries 2 *marks.*
(Ceiling 20 *marks)*

1. What is the weight of 1 in (a) 01000 and (b) 0.00100 ?
2. Compare a decoder with a demultiplexer.
3. Distinguish between a half adder and a full adder.
4. State and prove the distributive property of Boolean algebra.
5. Draw the symbol and truth table of a two-input XOR gate.
6. Simplify the expression (A + B) (A + C).
7. List four different types of flip-flop.
8. Distinguish between Combinational and Sequential logic circuit.
9. What do you mean by the modulus of a counter ? How many flip-flops are needed to design a modulo 55 counter ?
10. Give two applications of D flip-flop.
11. Differentiate between SRAM and DRAM.
12. What is EAPROM ?

Part B

All *questions can be answered.*
Each question carries 5 *marks.*
(Ceiling 30 *marks)*

13. Perform the following operations :
    (a) 11001011 + 111101.
    (b) 11011 – 10111.
    (c) 11101 × 110.

Turn over

14. Explain the Universal property of NAND gate.
15. Implement a 1 : 8 demultiplexer using gates.
16. Draw the truth table of a full adder and implement using logic gates.
17. Explain the working of a 4 bit Johnson counter.
18. Explain the working of a modulo 6 asynchronous counter.
19. Explain the working of a static RAM cell.

Part C

Answer any **one** *question.*
The question carries 10 *marks.*

20. Minimize the function F (A, B, C, D) = π(3, 5, 7, 8, 10, 11, 12, 13).
21. Explain the working of a Universal shift register.

(1 × 10 = 10 marks)