QP Code: D133839	Total Pages: 1	Name:
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THIRD SEMESTER UG DEGREE EXAMINATION, NOVEMBER 2025

(CUFYUGP)

ITY3CJ201 - DIGITAL ELECTRONICS

2024 Admission onwards

Maximum Time: 2 Hours	Maximum Marks: 70

Section A

All Questions can be answered. Each Question carries 3 marks (Ceiling: 24 Marks)

1	Define 1's complement with an example.
2	Convert $(458)_{10}$ to binary and hexadecimal.
3	Perform binary subtraction: $(11010)_2 - (1011)_2$.
4	Draw the logic symbol of XOR and write its truth table.
5	State DeMorgan's Theorems.
6	Write minterm and maxterm expressions for a two-variable function.
7	What is a half adder? Draw its logic diagram.
8	Differentiate multiplexer and demultiplexer.
9	Write the truth table of SR flip flop.
10	What is a shift register? Mention any two applications.

Section B

All Questions can be answered. Each Question carries 6 marks (Ceiling: 36 Marks)

11	Explain binary multiplication with an example.
12	Differentiate between BCD and ASCII codes with examples.
13	Prove NAND gate as a universal gate.
14	Simplify the Boolean expression F(A,B,C)=A'B+AB'+ABC using Boolean algebra.
15	Design a full adder using half adders.
16	Explain the working of a BCD to 7-segment decoder.
17	Explain JK flip flop with logic diagram and truth table.
18	Distinguish between synchronous and asynchronous counters.

Section C

Answer any ONE. Each Question carries 10 marks (1x10=10 Marks)

19	Explain different types of number system conversions with suitable examples.
20	Design and explain a 4-bit shift register with block diagram.