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PRN. No.	
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PAPER CODE	0114-3103 (Backlog)
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DECEMBER 2024 (Backlog) EXAM Sem-I

F.Y. (INFORMATION TECHNOLOGY)

(PATTERN 2023)

COURSE NAME: DIGITAL ELECTRONICS AND LOGIC DESIGN

COURSE CODE: IT11235

Time: [2Hr]

[Max. Marks: 60]

Instructions to candidates:

- 1) Use of scientific calculator is allowed
- 2) Use suitable data where ever required
- 3) All questions are compulsory. Solve any **THREE** sub questions from **EACH** question

Que. No.	Question Description	Max. Marks	CO mapped	BT Level
Q1.	Solve any three sub questions from the following			
	A) i) Binary (11101101) to Decimal ii) Hex (8C8F) to Octal	[5]	[1]	3
	B) Simplify the following logic function using Quine-McCluskey minimization technique. $Y = f(A, B, C, D) = \sum m(0, 2, 3, 5, 7, 9, 10, 12, 13)$	[5]	[1]	5
	C) Simplify the following logic function using K-Map minimization technique. $Y = f(A, B, C, D) = \sum m(0, 2, 4, 6, 7, 9, 10, 11, 13, 15)$	[5]	[1]	5
	D) i) Convert Hexadecimal (125) to Octal. ii) Convert Binary (11101011) to Decimal.	[5]	[1]	3
Q2.	Solve any three sub questions from the following			
	A) Design of BCD Adder using 4-bit Binary Adder.	[5]	[2]	5
	B) Design 4 bit odd parity generator using K-map.	[5]	[2]	5
	C) Design full adder. Represent the truth table, K-map simplification and circuit diagram.	[5]	[2]	5
	D) Design the given expression using 8:1 multiplexer using MSB method $F(A, B, C, D) = \sum m(1, 5, 7, 9, 10, 11, 13, 14, 15)$	[5]	[2]	5

Q3.	Solve any three sub questions from the following			
	A) Convert J-K to T flip-flop. Represent the truth table, K-map simplification and circuit diagram.	[5]	[3]	3
	B) Draw and explain working of Master Slave JK flip flop.	[5]	[3]	3
	C) Draw and explain significance of D & T flip flop.	[5]	[3]	3
	D) Demonstrate the working of SISO and SIPO shift registers.	[5]	[3]	3
Q4.	Solve any three sub questions from the following			
	A) Design Mod 92 counter using IC 7490.	[5]	[4]	5
	B) Elaborate the structure of 4-bit Ring with suitable example.	[5]	[4]	4
	C) Design sequence generator for 10110.	[5]	[4]	5
	D) Draw and explain IC 7490 in detail.	[5]	[4]	4

Note: [BT Level – 1. Remember 2. Understand 3. Apply 4. Analyze 5. Evaluate 5. Create]