

Reg. No.:



Name:

University of Kerala

U9369

Second Semester FYUGP Degree Examination, April 2025

Multi-Disciplinary course

COMPUTER APPLICATION

UK2MDCCAP102/ UK2MDCCSC103 - Digital Logic Systems

Academic Level: 100-199

Time: 1 Hour

Max. Marks: 28

Part A ,4 Marks ,Time 5 Minutes (Cognitive Level :Remember(RE)/Understand(UN))Objective Type 1 mark each, Answer all questions

Qn No.	Question	CL	CO
1	List the name of universal logic gates	RE	2
2	POS stands for.....	RE	2
3	List the combinational circuit which accepts several data inputs and allows only one of them at a time to get through to the output	UN	4
4	Basic logic gate used for addition.	UN	1

Part B ,8 Marks ,Time 15 Minutes (Cognitive Level :Understand(UN)/Apply(AP))Short Answer 2 marks each, Answer all questions

Qn No.	Question	CL	CO
5	If the 1's complement of a binary number is 101110, find its 2's complement.	UN	1
6	Differentiate between an AND gate and a NAND gate? Explain with truth tables.	UN	2
7	Compare and contrast the characteristics of SR flip-flop and JK flip-flop. How do their truth tables differ, and what are the implications for digital circuit design?	AP	3
8	Discuss the role of combinational circuits in digital system.	AP	4

Part C ,16 Marks ,Time 40 Minutes (Cognitive Level :Apply(AP)/Analyse(AN)/Evaluate(EV))/Long Answer 4 marks each, Answer all questions choosing among options* within each question

Qn No.	Question	CL	CO
9	A) Implement and the design of Full adder circuit.	AP	4, 2

Qn No.	Question	CL	CO
	OR B) State De-Morgan's theorem and Compare SOP and POS form of Boolean functions		
10	A) Illustrate the working of a T flip-flop with the help of a circuit diagram and truth table. OR B) Convert 378.93 Decimal to Octal number system	AN	3, 1
11	A) Convert the binary number 10110101 to decimal, octal, and hexadecimal. Show all the steps involved in the conversion. OR B) Explain the operation of a 4-to-1 multiplexer. Draw its truth table and logic diagram, and show how it selects one of the four inputs based on the select lines.	EV	1, 2
12	A) Draw the truth table and the logic diagram for an SR flip-flop. Explain its operation and how it is used in sequential circuits. OR B) Design a circuit using NAND gates that performs the same function as an OR gate. Explain the process and show the logic diagram.	CR	2, 2