

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -2 EXAMINATION- 2025

BCA -I Semester

COURSE CODE (CREDITS):25BC1MA111

MAX. MARKS: 25

COURSE NAME: DIGITAL LOGIC

COURSE INSTRUCTORS:SRT

MAX. TIME: 1 Hour 30 Min

Note: (a) All questions are compulsory.

(b) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems

Q.No	Question	CO	Marks
Q1.	Explain the following- a. Boolean Algebra b. Truth Table c. Logical variables d. K- map (Karnaugh's Map) e. Canonical forms	CO-2	5
Q2.	Draw the suitable logic gate diagrams for the following Boolean expressions- a. $X = (A+B).C$ b. $X = A.B + A.C + B.C$ c. $X = A.(B + \bar{C})$ d. $X = (A + \bar{B} + C).(\bar{A} + B + \bar{C})$ e. $\bar{A}\bar{B}C + \bar{A}B\bar{C} + ABC$	CO-2	5
Q3.	Convert the following fractional binary numbers to their decimal equivalent- a. $(110011.10011)_2$ b. $(101010101010.1)_2$ Convert the following decimal numbers to their binary equivalent- c. $(54.6875)_{10}$ d. $(27.1875)_{10}$ Convert the following decimal numbers to its hexadecimal equivalent- e. $(1,048,576)_{10}$	CO-1	5
Q4.	a. Explain the principle of Duality Theorem ? b. State the DeMorgan's Theorem along with it's truth table in detail?	CO-3	2.5 2.5
Q5.	a. Explain the concept of minterms and maxterms in detail? Construct the K-map for the following- b. $f(A)$ c. $f(A, B)$ d. $f(A, B, C)$ e. $f(A, B, C, D)$	CO-3	2.5 2.5