GALGOTIAS UNIVERSITY

ADMISSION NUMBER

School of Biomedical Science

B.Tech Biotechnology
Semester End Examination - Jun 2024

Duration : 180 Minutes
Max Marks : 100

Sem II - G2UC101B - BEE01T1005 - Introduction to Digital System - 1

General Instructions
Answer to the specific question asked
Draw neat, labelled diagrams wherever necessary
Approved data hand books are allowed subject to verification by the Invigilator

1)	Distinguish between Encoders and Decoders	K1(2)
2)	Obtain the 1's & 2's complement of the following binary numbers: (1010) & (10110010).	K2(4)
3)	Simplify the following Boolean expressions and design circuit using logic gates: (ii) Y = [(A + B)' . (A + C)']'.	K2(6)
4)	Design a logic circuit that has three inputs, A,B and C, and whose output will be HIGH when a majority of the inputs are HIGH.	K3(9)
5)	Prove the following identities using Boolean laws: (i) A+A.B=A (ii) (A + B) . (A + C) = A + B . C	K3(9)
6)	Design a logic circuit having three inputs X,Y,Z such that output is 1 when X= 0 or whenever Y=Z=1.	K5(10)
7)	Reduce the expression Σm(0,2,3,4,5,6) using mapping and implement it in NAND logic.	K4(12)
8)	Simplify the boolean function in sum of products using don't care condition. F=x'z' + y', d = yz + xy.	K5(15)
9)	Simplify using don't care condition F + A'(B'C + B'C' + BCD) + B'D' (C + A) and d = A'B(C'D + CD') + ACD.	K5(15)
10)	Differentiate between Flip flop and latch. Discuss the positive triggring in the Flip-flops using suitable example. T flip flop can be designed by using JK flip-flop - Justify?	K6(18)