Q.P. Code: 20CS0503b

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Reg. No: | | | | | | | | | | |

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

B.Tech I Year II Semester Regular & Supplementary Examinations October-2022

DIGITAL LOGIC DESIGN

(Common to CSE, CSIT & CCC)

Time: 3 hours Max. Marks: 60

(Answer all Five Units **5 x 12 = 60** Marks)

UNIT-I

1	**a**	Represent the decimal number 3451 in i)BCD ii)Hexadecimal and iii)perform (-60)-(-20) in binary using the signed-2's complement	**L1**	**6M**
	b	Simplify the Boolean expressions to minimum number of literals i) (A + B)(A + C')(B' + C') ii) AB + (AC)' + AB'C(AB + C)	**L2**	**6M**

OR

2	**a**	Explain the Excess-3 code.	**L2**	**6M**
	b	Simplify the Boolean expressions to minimum number of literals i) X' + XY + X Z' + XYZ' ii) (X+Y) (X+Y')	**L5**	**6M**

UNIT-II

3	**a**	Simplify the Boolean expression using K-map and implement using NAND gates F(A,B,C,D) = ∑m(0,2,3,8,10,11,12,14)	**L5**	**6M**
	b	Design the circuit by Using NOR gates F= (X+Y). (X'+Y'+Z')	**L5**	**6M**

OR

4	**a**	Design the circuit by Using NAND gates F= ABC'+ DE+ AB'D'	**L5**	**6M**
	b	Explain NAND- NOR implementations.	**L2**	**6M**

UNIT-III

5	**a**	Explain about parallel Adder.	**L2**	**6M**
	b	Implement the following Boolean function using 8:1 multiplexer F(A,B,C.D) = Σ (0,1,2,5,7,8,9,14,15)	**L5**	**6M**

OR

6	**a**	Explain Design Procedure of combinational circuits.	**L2**	**6M**
	b	Explain Full binary subtractor in detail.	**L2**	**6M**

UNIT-IV

7	**a**	Explain the Logic diagram of RS flip-flop.	**L2**	**6M**
	b	Explain about Ring counter.	**L2**	**6M**

OR

8	**a**	Write difference between Combinational and Sequential circuits.	**L5**	**6M**
	b	Draw and explain the operation of T Flip-Flop.	**L5**	**6M**

UNIT-V

9	**a**	Compare between PROM, PLA & PAL.	**L2**	**6M**
	b	Encode the 11-bit code 10111011101 into 15 bit information code.	**L5**	**6M**

OR

10	**a**	Explain the memory decoding, error detection and correction.	**L1**	**6M**
	b	Implement the following function using PLA A(x,y,z)=∑m(1,2,4,6) B(x,y,z)=∑m(0,1,6,7) C(x,y,z)=∑m(2,6)	**L5**	**6M**

*** END ***