Q.P. Code: 16EC402 R16

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

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

III BTECH I SEM Regular Examinations Nov 2018

SWITCHING THEORY & LOGIC DESIGN

(EEE)

Time: 3 hours Max. Marks: 60

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

UNIT-I

1	**a**	Perform the following a) Subtraction by using 1's complement for the given 3456 - 245. b) Subtraction by using 2's complement for the given 111001-1010.	6M
	b	Convert the following to Decimal and then to Hexadecimal. (i) 12348 (ii) 110011112	6M

OR

2	**a**	Simplify the following Boolean functions to minimum number of literals (i) xyz + x'y + xyz'. (ii) xz + x'yz.	4M
	b	Explain about Logic Gates with truth tables.	8M

UNIT-II

3	**a**	Simplify the following expression using the K-map for the 3-variable. Y = AB'C+A'BC+A'B'C+A'B'C'+AB'C'	7M
	b	Simplify the Boolean function F(A,B,C,D)=∑(1,3,7,11,15)+d(0,2,5)	5M

OR

4	**a**	Minimize the given Boolean function F(A,B,C,D) = Σ m(0,1,2,3,6,7,13,15) using tabulation method and implement using basic gates	6M
	b	Implement the following Boolean function using NOR gates. Y= (AB'+A'B)(C+D').	6M

UNIT-III

5	**a**	Construct a BCD Adder-circuit.	7M
	b	What is encoder? Design octal to binary encoder.	5M

OR

6	**a**	Design 32:1 Mux using two 16:1 Muxs and one 2:1 Mux	6M
	b	Implement the following Boolean function using 8:1 multiplexer. F(A,B,C,D) = A'BD'+ACD+B'CD+A'C'D.	6M

UNIT-IV

7	**a**	Design T Flip Flop by using JK Flip Flop.	7M
	b	Explain about Level triggering and Edge triggering.	5M

OR

8	**a**	Write the differences between combinational and sequential circuits.	8M
	b	Draw the schematic circuit of RS Master slave flip flop and explain its operation with help of truth table.	4M

UNIT-V

9	**a**	Explain about PLA and PAL.	6M
	b	Discuss Mealy & Moore Machine models of sequential machines.	6M

OR

10	a	Implement PLA circuit for the following functions F1(A,B,C)= Σm(3,5,6,7), F2(A,B,C)= Σm(0,2,4,7).	9M
	b	Implement the following Boolean function using PAL. (i)A(w,x,y,z) = Σm(0,2,6,7,8,9,12,13) (ii)B(w,x,y,z)) = Σm(0,2,6,7,8,9,12,13,14)	3M

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