Q.P. Code: 18EC0444 **R18**

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

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY: PUTTUR

(AUTONOMOUS)

B.Tech II Year II Semester Supplementary Examinations July-2021

DIGITAL ELECTRONICS

(Electrical and Electronics Engineering)

Time: 3 hours Max. Marks: 60

PART-A

(Answer all the Questions **5 x 2 = 10** Marks)

1	a	Convert the following to gray code.$(10110011)_2$	**2M**
	b	Define Multiplexer.	**2M**
	c	What is the difference between Latch and Flip – flop?	**2M**
	d	Define FAN IN and FAN OUT.	**2M**
	e	What are the different types of semiconductor memories?	**2M**

PART-B

(Answer all Five Units 5 x 10 = 50 Marks)

UNIT-I

2	a	Convert the following to Decimal and then to Octal **i)** $(10110011)_2$ **ii)** $(1234)_{16}$	**5M**
	b	Perform the subtraction by using 1's complement for the given (10101 – 11011).	**5M**
		OR	
3	a	Explain Different Types of binary codes and give the examples.	**5M**
	b	Simplify the following Boolean expressions: **i)** F = (A+B)(A'+C)(B+C). **ii)** F = XY+XYZ+XYZ'+X'YZ	**5M**

UNIT-II

4	a	Minimize the following Boolean function using K-Map F(A, B, C, D)= Σ m(0, 2, 4, 6, 8, 10, 12, 14).	**5M**
	b	What is Decoder? design3:8 decoder.	**5M**
		OR	
5	a	Minimize the given Boolean function F(A,B,C,D) = Σ m(0,1,2,3,6,7,13,15) using tabulation method.	**5M**
	b	Design 2-bit comparator with Logic diagram.	**5M**

UNIT-III

6	a	Design D Flip Flop by using SR Flip Flop Explain the operation with truth table.	**6M**
	b	Write the differences between combinational and sequential circuits.	**4M**
		OR	
7	a	Explain working of Master Slave Flip flop with neat diagram.	**5M**
	b	Design T Flip Flop by using JK Flip Flop and draw the timing diagram.	**5M**

UNIT-IV

8		Perform the analysis of standard TTL NAND gate and give its characteristics.	**10M**
		OR	
9		Explain about TTL to CMOS interfacing.	**10M**

UNIT-V

10		Implement the following Boolean function using PLA **i)** F(w,x,y,z) = Σm(0,1,3,5,9,13) **ii)** F(w,x,y,z)) = Σm(0,2,4,5,7,9,11,15)	**10M**
		OR	
11		What is ROM organization? Explain about Different types of ROM.	**10M**

END