



## B.E./ B. Tech. Degree Examination

### CONTINUOUS ASSESSMENT TEST– I [ CSE / IT ]

Subject Name: Digital Principles and System Design  
Subject code : CS8351  
Branch/year/sem: TIIIII

Time: 10.00-11.30am  
Date : 18.8.2020  
Max. Marks : 50

#### PART -A

(5\*2=10)

#### ANSWER ALL QUESTIONS

1. What is meant by weighted and non weighted coding?[R][CO1]
2. Convert 1101101110.100110 to hexadecimal equivalent.[A][CO1]
3. State DeMorgan 's theorem.[CO1]
4. State various laws of Boolean algebra.[U][CO1]
5. Prove  $A+AB=A.(A)$ [CO1]

#### PART -B

(2\*13=26 Marks)

- 6 a).i) Convert the expression in standards SOP form [U][CO1] (13)

i)  $F(A,B,C) = A + BC$  [A] [CO1]

- ii) Convert  $(A+B)(B+C)(A+C)$  into standard POS form [U][CO1]

- iii) Convert the given expression in standard SOP form [U] (CO1)

$$F(A,B,C)=AB+BC+CA$$

(OR)

- b) State and prove various properties and laws of boolean algebra also prove (13)

Demorgans theorem [A][CO1]

7. a) Minimize the expression using K-Map[A][CO1]

$$Y = A'BC'D' + A'BC'D + ABC'D' + AB'C'D + A'B'CD'$$

$$F(A,B,C,D) = \sum m(0,2,4,5,6,8,10,15) + d(7,13,14)$$

$$F(A,B,C,D) = \prod M(0,2,3,8,9,12,13,15)$$

OR



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b) Design a logic circuit to simulate the function. [A][CO1](13)

(i)  $F = AB + ABC + A'BC + AB' + D$  using only NAND gates

ii)  $Y = AC + BC + AB + D$  using only NOR gates

## PART –C (1\*14=14 Marks)

8. a) i) Design full adder using two half adders(AN)[CO2]

ii) Design a 4 bit parallel adder using full adders.(AN)[CO2]

co	CS8351	DIGITAL PRINCIPLES AND SYSTEM DESIGN	L	T	P	C
			4	0	0	4
C202.1 (CO1)	Simplify Boolean functions using KMap.					
C202.2 (CO2)	Design and Analyze Combinational and Sequential Circuits					
C202.3 (CO3)	Implement designs using Programmable Logic Devices. Write HDL codes for combinational and sequential circuits.					
C202.4 (CO4)	Analyze a memory cell and apply for organizing larger memory.					
C202.5 (CO5)	Understand and compare the concepts of programmable logic devices. Develop HDL programs for combinational and sequential circuits					