Name: Student University Roll No.:	Printed Pages: 1

School of Engineering

Second Sessional Examination, Odd Semester (AS: 2023-24)

B. Tech: CSE **Year: 2** **Semester: 3**	
Course Title: Digital logic design **Course Code: BCS3303**	**Max Marks: 60** **Time: 3hrs**

Instructions if any: Read the question Carefully.

	SECTION 'A' **Q.N.1. Attempt all parts of the following:**	**Course Objective**	**Marks**
a)	(473)10 in to BCD code.	CO3	1
b)	Convert the following gray code into its binary: 10101110.	CO3	1
c)	What is combinational Circuit?	CO2	1
d)	Truth table for full adder.	CO1	1
e)	What is race-around condition?	CO4	1
f)	Define Counters with its types.	CO7	1
g)	Difference between mealy and Moore circuits.	CO5	1
h)	Differentiate between ROM and RAM.	CO2	1
	SECTION 'B' **Q.N.2. Attempt any two parts of the following:**	**Course Objective**	**Marks**
a)	Minimize the logic expression with K-map: (i). F (A, B, C, D) =AB + A'B D'+ BC'D , (ii). F (A, B, C, D) =Σ m (0, 1, 2, 3, 4, 9, 10, 12, 13, 14, 15)	CO6	6
b)	Design A 4-bit binary adder with clean diagram and define it with example.	CO2	6
c)	Difference between: (i). Latches and flip-flops. (ii).Asynchronous and synchronous circuits.	CO4	6
d)	(i) Compare the Moore and Mealy state machine models. (ii) Compare PAL and PLA.	CO5	6
	SECTION 'C'	**Course Objective**	**Marks**

	Q.N.3. Attempt any two parts of the following:	
a)	Use Tabulation method to minimize the expression: F (A. B. C, D) =Σ m (0, 1, 2, 3, 4, 9, 10, 12, 13, 14, 15)	CO2
b)	Define Error correction and detection code.	CO2
c)	Briefly describe Floating point representation in digital system.	CO3
	Q.N.4. Attempt any two parts of the following:	
a)	Design magnitude comparator.	CO7
b)	Describe design and analysis of decoders.	CO7
c)	Design F(a,b,c,d) = Σ m(1,3,4,6,7,12, 15) with 4:1 Mux.	CO7
	Q.N.5. Attempt any two parts of the following:	
a)	Design and analyze Master-Slave JK flip-flop.	CO4
b)	Design and analyze Ring counters.	CO7
c)	Design D and T flip-flop.	CO4
	Q.N.6. Attempt any two parts of the following:	
a)	Write short notes on Hazards in Asynchronous circuits.	CO2
b)	Describe Programmable logic devices.	CO5
c)	Design Transition and flow table for the expression: Y1 = xy1+x'y2	CO5

Table 1: Mapping between COs and questions

(Number of COs may vary from course to course)

COs	Questions Numbers	Total Marks
CO1	1(d),	1
CO2	1(c),1(h), 2(b),3(a),3(b),6(a)	23
CO3	1(a),1(b),3(c)	7
CO4	1(e),2(c),5(a).5(c)	17
CO5	1(g),2(d),6(b).6(c)	17
CO6	2(a)	6
CO7	1(f),4(a),4(b),4(c),5(b)	21