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School of Engineering **First Sessional Examination, Odd Semester (AS: 2021-22)** **B. Tech:** Computer Science & Engineering **Year:** Second **Semester:** 3rd	
Course Title: Digital Logic Design **Course Code:** BCS3303	**M.M.: 30** **Time:** 1 *hr*

Instructions if any: Read the question Carefully.

	SECTION 'A' **Q.N.1. Attempt all parts of the following:**	**Course Objective**	**Marks**
a)	Convert the decimal number 53.625 into an equivalent binary number.	CO1	1
b)	Convert the hexadecimal number A3BH into decimal numbers.	CO1	1
c)	Given the two binary numbers X=1010100 and Y=1000011, perform the subtraction Y-X using 2's complements.	CO1	1
d)	Convert the Gray code 110101 to binary form.	CO1	1
e)	Explain Canonical Forms and Standard Forms.	CO1	1
	SECTION 'B' **Q.N.2. Attempt any two parts of the following:**	**Course Objective**	**Marks**
a)	Implement the following function with i) NAND Gates, ii) NOR Gates. $F(x, y, z) = \Sigma(0, 6)$	CO1	7.5
b)	Obtained the simplified expression in SOP for the following Boolean function using Veitch Diagram. ABD + A'C'D' + A'B + A'CD' + AB'D'	CO1	7.5
c)	Simplify the following Boolean function in SOP using Veitch Diagram $F(A, B, C, D, E) = \Sigma(0, 2, 4, 6, 9, 11, 13, 15, 17, 21, 25, 27, 29, 31)$	CO1	7.5
d)	Design Full-Subtractor.	CO1	7.5
	SECTION 'C' **Q.N.3. Attempt any one part of the following**	**Course Objective**	**Marks**
a)	Write short notes on Hamming Code. How single bit correction and double bit detection is done with Hamming Code.	CO1	10
b)	Simplify the following function with the Quine-McCluskey method. $F(w, x, y, z) = \Sigma(1, 3, 7, 11, 15)$ with the don't care conditions $d(w, x, y, z) = \Sigma(0, 2, 5)$	CO1	10
c)	Simplify the following Boolean function in a) SOP and b) POS c) Complimented Function in SOP d) Complimented Function in POS. $F(A, B, C, D) = \Sigma(0, 1, 2, 5, 8, 9, 10)$	CO1	10

Table 1: Mapping between COs and questions

(Number of COs may vary from course to course)

COs	Questions Numbers	Total Marks
CO1	Q1 (a,b,c,d,e),Q2(a,b,c,d), Q3(a,b,c)	65
CO2		