NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY ,GREATER NOIDA

(An Autonomous Institute Affiliated to AKTU, Lucknow)

B. TECH. SECOND YEAR (3rd Semester) - CSE/[redacted]/CS/[redacted]

(SEM:III, SESSIONAL EXAMINATION –I)(2021-2022)

Subject Name: Digital Logic & Circuit Design (ACSE-0304)

Time: 1.15Hours **Max. Marks:30**

General Instructions:

- All questions are compulsory. Answers should be brief and to the point.
- This Question paper consists of 2 pages & 5 questions.
- It comprises of three Sections, A, B, and C. You are to attempt all the sections.
- Section A -Question No- 1 is objective type questions carrying 1 mark each, Question No- 2 is very short answer type carrying 2 mark each. You are expected to answer them as directed.
- Section B - Question No-3 is Short answer type questions carrying 5 marks each. You need to attempt any two out of three questions given.
- Section C -Question No. 4 &5are Long answer type (within unit choice) questions carrying 6marks each. You need to attempt any one part *a or b*.
- Students are instructed to cross the blank sheets before handing over the answer sheet to the invigilator.
- No sheet should be left blank. Any written material after a blank sheet will not be evaluated/checked.

		SECTION – A	[8]	
1.	Attempt all parts		(4×1=4)	CO1
	a.	The XOR gates output will be low if two inputs are ____ a) 00 b) 01 c) 10 d) None of these	(1)	CO1
	b.	Decimal value of a Signed binary number $(1111)_2$ is ____ a) 15 b) -7 c) +7 d) None of these	(1)	CO1
	c.	2's Complement of a binary number $(10101110)_2$ a) 01010001 b) 11010001 c) 01010010 d) 11010111	(1)	CO1
	d.	DeMorgan's theorem states that _____ a) (A.B)' = A' + B' b) (A + B)' = A' . B c) A' + B' = A'.B' d) (A.B)' = A' + B	(1)	CO1

2.	**Attempt all parts**		(2×2=4)	CO1
	a.	Draw the logical circuit of AND Gate using NOR Gate	(2)	CO1
	b.	What are the Invalid BCD Codes?	(2)	CO1
		SECTION – B		
3.	**Answer any two of the following-**		[2×5=10]	CO1
	a.	Implement the Boolean expression Y= AB+ CD+E using NAND logic gate.	(5)	CO1
	b.	Perform BCD Addition of 999 and 989.	(5)	CO1
	c.	Explain Hamming Code with an example	(5)	CO1
		SECTION – C		
4	**Answer any one of the following-(Any one can be applicative if applicable)**		[2×6=12]	CO1
	a.	Write the Boolean expressions for a 3-input AND and OR gate with truth table and logic symbol.	(6)	CO1
	b.	What are the weighted and unweighted codes? Give two examples for each	(6)	CO1
5.	**Answer any one of the following-**			
	a.	Convert the binary number $(11011110)_2$ into the decimal, octal and Hexadecimal equivalent	(6)	CO1
	b.	Explain the Significance of SOP and POS with suitable example	(6)	CO1