NIET Greater Noida GET FUTURE READY	**DIGITAL LOGIC AND CIRCUIT DESIGN (ACSE0304)** **UNIT-I**	**SESSION: 2022-23** **CLASS/SEM: CSE/ III[rd] (ODD)**

Assignment Given Date: 22/09/2022 Assignment Submission Date: 24/09/2021	Maximum Points: 10
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Note: Write solution of each question in clear handwriting.

Q. N.	Question Statement	Pts	CO	BLOOM'S KNOWLEDGE LEVEL
1	Do as directed: 1. (250.5)10 = ()8= ()4 2. (2ED)16= ()8= ()2 3. Obtain the 9's and 10's complement of (864)10 4. (347)10 = ()2= ()8= ()5 = ()16 = () BCD 5. (11010111.110)2 = ()10= ()12= ( )16	10	1	K3
2	1. Explain Hamming Code with an example 2. Construct the hamming code, if 4-bit data 1001 is transformed. 3. A receiver receives the hamming code 1110101, What is the correct code for even parity? 4. Convert 1110110 binary code into gray code.	10	1	K2
3	Do as directed: 1. (198)12+(12121)3= ()8 2. Determine the value of base x if (50)x=(203)4 3. Given the two binary numbers X = 1010101 and Y = 1001011, perform the subtraction X-Y using 1's complements. 4. Using 10's complement performs (4572)10-(2102)10. 5. Multiply the (135)6 and (43)6 in the given base without converting to decimal.	10	1	K3

	6. Given the two binary numbers X = 11010 and Y = 1101, perform the subtraction X-Y using 2's complement. 7. Using 9's complement perform (582)10-(1002)10			
4	What are the invalid BCD codes? Perform BCD Addition of 999 and 989.	10	1	K1
5	The solution to the quadratic equation $k^2 - 11k + 22 = 0$ are k = 3 and k = 6. What are the base of number systems?	10	1	K3
6	Simplify the expression using DEMORGAN'S THEOREM:(a(b+c)+a'b)'	10	1	K3
7	Prove that a positive-logic AND gate is a negative-logic OR gate and vice-versa	10	1	K1
8	(a) F= (A +B') (CD+E) using only NAND gates. (b) F=A (B+CD) +BC' with only NOR gates.	10	1	K2
	Simplify the following Boolean expressions. 1. F(w,x,y,z) = xy+wy'+wx+xyz 2. F(p, q, r, s) = (p'+q) (p+q+s)s' 3. F(x,y,z)=xy+xyz+xyz'+x'yz 4. F(A,B,C,D)=A'C(A'BD)'+A'BC'D'+AB'C			K3
9	Simplify the Boolean functions F= w'(x'y + x'y'+ xyz) +x'z' (y+w) using don'tcare conditions d=w'x (y'z + yz') + wyz in (i) sum of products and (ii) product of sums using Karnaugh map.	10	1	K3
10	Simplify the following Boolean functions using the Karnaugh map: 1. F(A,B,C,D)=Π(0,1,2,3,4,10,11) 2. F(w,x,y,z)=Σm(0,1,2,4,5,12,13,14) + don't care conditions Σd(6,8,9) 3.F(A,B,C,D,E)=Σm(0,2,4,6,9,11,13,15,17,21,25,27,29,31) using Karnaugh map.	10	1	K3