Logic Design - Fall 2022-2023 – Homework 2

Instructions:

1- Please submit before deadline
2- Answer the questions in details with standard procedures as per examples in lecture notes
3- Solve assigned questions only as per below table.
4- Answer the questions as handwritten on white A4 paper, then scan and include all scanned images in a single word or pdf document.
5- Submit the answer in SIS system under the assignment HW_2

	Questions	1	2	3	4	5	6	7
#	Student Name							
1	Abdulrahman Hassan Zakarya	b	d	c	a	d	a	d
2	Aesan Azad Mikhael	a	c	c	b	c	b	c
3	Ahmed Salah Ismail	c	a	b	b	d	d	a
4	Ahmed Sarhang Mohammed	c	d	b	b	c	a	c
5	Anas Bilal Ali	c	c	a	a	d	b	a
6	Blind Salim Faqi	c	b	b	a	d	b	b
7	Chener Farhad Othman	a	d	d	b	a	b	a
8	Eman Dlshad Khidir	c	d	c	b	a	a	b
9	Ghazaly Faris Yousif	b	a	c	d	c	a	b
10	Kamaran Bakhtyar Abdulqader	d	d	d	d	c	b	c
11	Khalid Amir Maml	c	d	b	d	d	b	c
12	Lava Ahmed Mohammed	d	d	d	a	d	a	b
13	Matin Guli	b	c	a	a	b	a	b
14	Meer Hoger Shakir	b	a	a	c	d	d	d
15	Milad Mazin Khdir	b	d	b	a	c	a	d
16	Mohammad Karkhi Mohammad	c	c	a	a	b	d	a
17	Nihad Naji Bag	c	c	d	a	b	d	b
18	Raman Hamadameen Omer	d	c	c	a	b	c	d
19	Rashwan Abdulrahman Abduljabar	b	a	a	c	c	c	c
20	Rastgo Farman Izaddin	c	a	b	a	d	c	a
21	Rebar Shamal Mamand	c	d	a	d	b	b	b
22	Saywan Nuri Rashed Ali	d	b	d	d	c	d	b
23	Shad Mohammed Taha Hussin	b	c	b	a	b	a	b
24	Solav Rebwar Hamo	b	b	d	d	c	a	c
25	Yousif Emyan Aziz	b	c	d	a	d	b	b
26	Zagros Ramzi Aziz	a	b	c	c	a	b	a
27	Zainab Musher Saeed	d	a	c	d	a	a	a

Lecture 2 Logic Gates and Boolean Algebra Questions

Q1\ Draw the Symbol, Boolean expression and Truth Table for each gate below (consider two inputs):

a. NOT gate
b. AND gate
c. OR gate
d. Define the following terms: Truth table, Timing diagram, and Boolean algebra

Q2\ Draw the Symbol, Boolean expression and Truth Table for each gate below (consider two inputs):

a. NAND gate
b. NOR gate
c. XOR gate
d. XNOR gate

Q3\ Find the truth table for the output for all possible values of the input variables.

(a) $A + \overline{B} + \overline{C}$ **(b)** $\overline{A} + \overline{B} + \overline{C}$ **(c)** $\overline{A}\,\overline{B}C$ **(d)** $\overline{A} + \overline{B} + C$

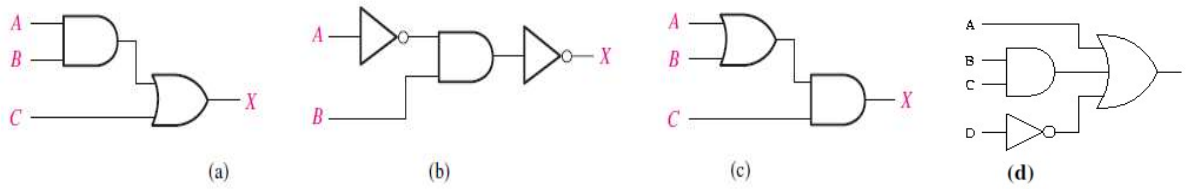
Q4\ Apply DeMorgan's Laws to each expression:

(a) $\overline{A + \overline{B}}$ **(b)** $\overline{\overline{A}B}$ **(c)** $\overline{A + B + C}$ **(d)** $\overline{ABC}$

Q5\ Apply DeMorgan's laws to each expression:

(a) $\overline{A(B + C)}$ **(b)** $\overline{AB} + \overline{CD}$ **(c)** $\overline{AB + CD}$ **(d)** $\overline{(A + \overline{B})(\overline{C} + D)}$

Q6\ Write the Boolean expression for each of the logic circuits



Q7\ Draw the logic circuit represented by each expression:

(a) $AB + \overline{AB}$ **(b)** $ABCD$
(c) $A + BC$ **(d)** $ABC + D$