



Ministry of Higher Education and Scientific Research

Date: //6/2015

Time: 3 hours

Lecture: Enas Tariq

University of Technology

Computer Sciences Department

first trail 2014-2015

Subject: Logic Design

Class: 1st class

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Branch: Networks

Note: Answer Five Questions only.

Q1/ Answer the following:

1- Subtract hexadecimal numbers (CA2)-(A1B).

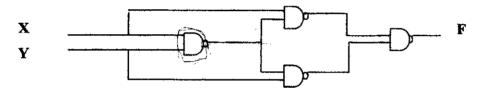
2- Convert Decimal to Binary to Gray number (44).

3- Convert hexadecimal number to Octal (E27.9).

4- Convert Octal to Decimal number (3451.61).

5- Addition Octal number (247) + (123).

Q2/ A/ Use Boolean algebra to show that following circuit is equivalent to a 2 input XOR gate?



B/ Show using Boolean algebra that

$$(\overline{A}\overline{B} + \overline{A}B + \overline{A} + \overline{B} + \overline{C}) (\overline{A} + \overline{B} + \overline{C}) = \overline{B} + \overline{A}C + \overline{A}\overline{C}$$
?

Q3/ A/ Simplify the Boolean function that represented in the following truth table using Karnaugh map?

X	Y	Z	F
0	0	0	0
0	0	1	1
0	1	0	0
0	1	ī	0
1	0	0	1
1	0	1	1
1	1	0	i
1	1	1	1

B/ Design full sub tractor.

Q4/ Simplify the following function using.

- a) S.O.P $F(X, Y, Z) = \sum (1, 3, 5, 7)$
- b) P.O.S $F(X, Y, Z) = \prod (1, 3, 5, 7)$

O5/A/ Design JK master- slave flip- flop.

B/ Design Demultiplexer with A1 to 4 lines?

Q6/A/Draw 3 bit synchronous Binary counter.

B/ List the type of shift register with draw all.

Good Luck

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