Marking Scheme

Exam Paper

BSc CE

Logic Circuits (630211)

Second Quiz   First semester   Date   05/12/2019

Section 1

Weighting 6% of the module total

Lecturer: Dr. Qadri Hamarsheh

Coordinator: Dr. Qadri Hamarsheh
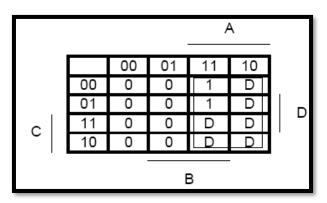
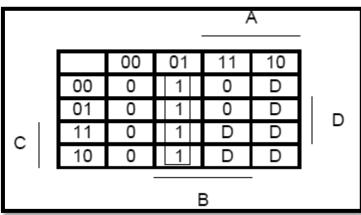Internal Examiner: Eng. Anis Nazer

Marking Assignments

Question 1   *(6 marks)*

Solution

Decimal	Gray Code				BCD			
	A	B	C	D	W	X	Y	Z
0	0	0	0	0	0	0	0	0
1	0	0	0	1	0	0	0	1
2	0	0	1	1	0	0	1	0
3	0	0	1	0	0	0	1	1
4	0	1	1	0	0	1	0	0
5	0	1	1	1	0	1	0	1
6	0	1	0	1	0	1	1	0
7	0	1	0	0	0	1	1	1
8	1	1	0	0	1	0	0	0
9	1	1	0	1	1	0	0	1
10	1	1	1	1	D	D	D	D
11	1	1	1	0	D	D	D	D
12	1	0	1	0	D	D	D	D
13	1	0	1	1	D	D	D	D
14	1	0	0	1	D	D	D	D
15	1	0	0	0	D	D	D	D

Karnaugh Map for W:

Minimal Expression for W:

$W = A$

Karnaugh Map for X:

Minimal Expression for X:

$X = A'B$

Karnaugh Map for Y:

	00	01	11	10
00	0	1	0	D
01	0	1	0	D
11	1	0	D	D
10	1	0	D	D

A (top), B (bottom), C (left), D (right)

$$Y = A'BC' + B'C$$

Karnaugh Map for Z:

	00	01	11	10
00	0	1	0	D
01	1	0	1	D
11	0	1	D	D
10	1	0	D	D

A (top), B (bottom), C (left), D (right)

$$Z = A'BC'D' + B'C'D + AD + BCD + B'CD'$$