

Unit 6 - Week 4 : Unit 4

Course outline

How to access the portal

Week 0 Assignment 0

Week 1

Week 2 : Unit 2

Week 3 : Unit 3

Week 4 : Unit 4

Lecture 16 : Minimization Using Karnaugh Maps (Part I)

Lecture 17 : Minimization Using Karnaugh Maps (Part II)

Lecture 18 : Minimization Using Karnaugh Maps (Part III)

Lecture 19 : Minimization Using Tabular Method (Part I)

Lecture 20 : Minimization Using Tabular Method (Part II)

Lecture Material

Feedback for Week 4

Quiz : Week 4 Assignment 4

Week 5 : Unit 5

Week 6

Week 7

Week 8

Week 9

Week 10

Week 11

Week 12

Download Videos

Text Transcripts

Detail Solution

Live Session

Week 4 Assignment 4

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

Due on 2019-08-28, 23:59 IST.

1) In a Karnaugh map, a cube of size 4 corresponds to minterms that differ in variables.

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Numeric) 2

1 point

2) Consider the following 4-variable Karnaugh map:

		CD			
		00	01	11	10
AB	00	0	1	3	2
	01	4	5	7	6
	11	12	13	15	14
	10	8	9	11	10

The set of minterms {0, 2, 8, 10} represents the minimized expression:

- $B'D'$
- $AB' + CD$
- $A'B' + AB' + C'D' + CD'$
- None of these

- a.
 b.
 c.
 d.

No, the answer is incorrect.
Score: 0

Accepted Answers:
a.

1 point

3) The expression for the SUM output of a full adder is (assuming that the inputs are A, B and C):

- $A.B + B.C + C.A$
- $A \oplus B \oplus C$
- $A'.B'.C + A'.B.C' + A.B'.C'$
- $A'.B'.C + A'.B.C' + A.B'.C' + A.B.C$

- a.
 b.
 c.
 d.

No, the answer is incorrect.
Score: 0

Accepted Answers:
b.
d.

4) Consider a 4-variable Karnaugh map:

		CD			
		00	01	11	10
AB	00	0	1	3	2
	01	4	5	7	6
	11	12	13	15	14
	10	8	9	11	10

For the function $F = \sum (0, 3, 4, 5, 11, 13, 15)$, the number of products terms in the minimized expression will be

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Numeric) 4

1 point

5) The minimum number of 2-input NAND gates required to realize the CARRY output of a full adder will be

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Numeric) 6

1 point

6) Which of the following statements are true?

- All prime implicants are minterms, but all minterms are not prime implicants.
- If a literal is deleted from a prime implicant, it no longer remains an implicant.
- In the K-map, a cube corresponding to a prime implicant may be covered by a larger cube.
- None of these.

- a.
 b.
 c.
 d.

No, the answer is incorrect.
Score: 0

Accepted Answers:
b.

1 point

7) For the 3-variable function $F(A,B,C) = \sum (0, 2, 3, 4, 5, 7)$, how many essential prime implicants are there?

- 0
- 4
- 5
- 6

- a.
 b.
 c.
 d.

No, the answer is incorrect.
Score: 0

Accepted Answers:
a.

1 point

8) For the 4-variable function $F(A,B,C,D) = \sum (0, 4, 5, 7, 8, 9, 13, 15)$, which of the following are prime implicants?

- B.D
- $A.B'.C'$
- $A'.C'.D'$
- All of these

- a.
 b.
 c.
 d.

No, the answer is incorrect.
Score: 0

Accepted Answers:
d.

1 point

9) In the tabular method of minimization, what does a cyclic prime implicant chart indicate?

- There exists a cyclic dependency among the function inputs.
- All the prime implicants are essential.
- None of the prime implicants are essential.
- None of these.

- a.
 b.
 c.
 d.

No, the answer is incorrect.
Score: 0

Accepted Answers:
c.

1 point

10) The first step of the Quine-McCluskey method of function minimization

- Identifies the essential prime implicants.
- Identifies all the prime implicants.
- Minimizes the number of product terms.
- None of these.

- a.
 b.
 c.
 d.

No, the answer is incorrect.
Score: 0

Accepted Answers:
b.

1 point