



# Unit 7 - Physical Design

## Course outline

How to access the portal ?

Introduction and Overview of VLSI Design

Scheduling in High-Level Synthesis

Resource Sharing and Binding in HLS

Logic Synthesis

Physical Design

☐ Physical Design (Part-1)

☐ Physical Design (Part-2)

☐ Physical Design (Part-3)

☐ Quiz : WEEK 4 ASSIGNMENT

Introduction to Verification Techniques

Syntax and semantics of CTL, Equivalences between CTL formulas and Introduction to Model Checking

CTL Model checking Algorithms and Introduction to Binary Decision Diagrams

## WEEK 4 ASSIGNMENT

The due date for submitting this assignment has passed. **Due on 2016-08-22, 23:58 IST.**

### Submitted assignment

1) Which of the following statement(s) is (are) true about moore style FSM?

1 point

- ☐ the output is a function of the present state.
- ☐ the output is a function of the present state and inputs.
- ☐ the output is a function of the next state.
- ☐ the output is a function of the next state and inputs.

**No, the answer is incorrect.**

**Score: 0**

**Accepted Answers:**

*the output is a function of the present state.*

2) Which of the following statement(s) is(are) incorrect about Boolean expressions?

1 point

- ☐ All Boolean expressions can be implemented as a two-level logic function.
- ☐ All Boolean expressions can be implemented as a three-level logic function.
- ☐ All Boolean expressions can be implemented as a four-level logic function.
- ☐ None of the above

**No, the answer is incorrect.**

**Score: 0**

**Accepted Answers:**

*None of the above*

3) The ON-set of a Boolean function is composed of the following min-terms: 1, 2, 5, 6, 7, 9, 10. The don't cares are: 0, 3, 11, 13. The cardinality of the exhaustive set of prime implicants is: **2 points**

- ☐ 5
- ☐ 6
- ☐ 4
- ☐ 7

**No, the answer is incorrect.**

**Score: 0**

**Accepted Answers:**

*6*

4) The minimum number of essential prime implicants for the Boolean function in Q3 are:

2 points

- ☐ 4
- ☐ 3

Binary Decision  
Diagram and  
Symbolic model  
checking

Introduction to  
Digital Testing

Fault Simulation  
and Testability  
Measures

Combinational  
Circuit Test  
Pattern  
Generation

Sequential  
Circuit Testing  
and Scan Chains

Built In Self Test  
(BIST)

- ☐ 5  
☐ 2

No, the answer is incorrect.

Score: 0

Accepted Answers:

3

5) For the ESPRESSO algorithm, which of the following statement(s) is(are) true:

1 point

- ☐ The expand step produces a cover over prime implicants.  
☐ The irredundant step produces a cover over essential prime implicants.  
☐ The reduce step retains a cover over all prime implicants.  
☐ None of the above.

No, the answer is incorrect.

Score: 0

Accepted Answers:

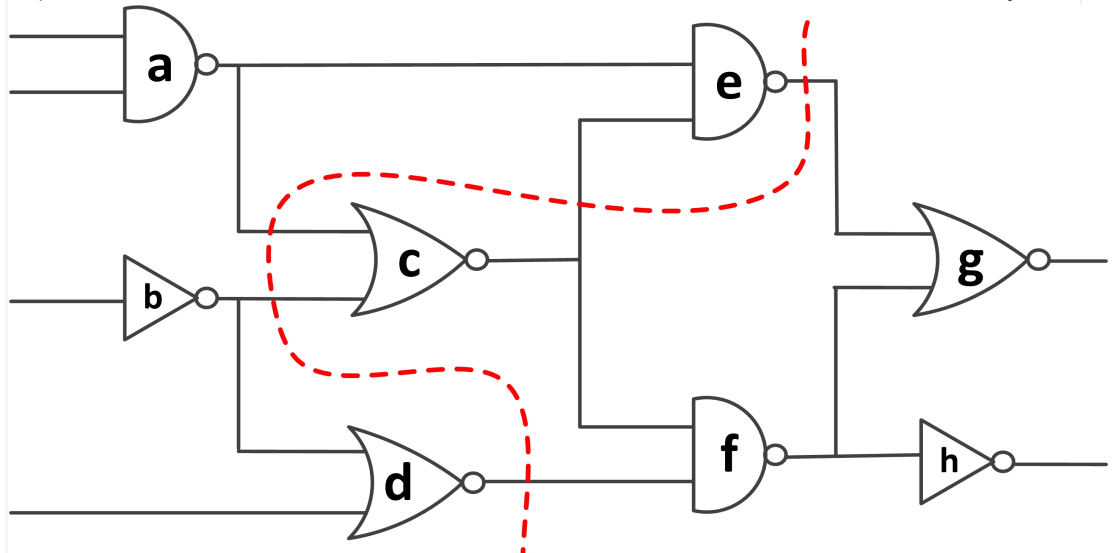
The expand step produces a cover over prime implicants.

The irredundant step produces a cover over essential prime implicants.

The reduce step retains a cover over all prime implicants.

6)

2 points



For the given circuit diagram with the initial partition as shown through the cut line, obtain a netlist. With this netlist as an input, a correct enumeration of the vertices on each side of the partition after the second iteration of the inner repeat loop in the Kernighan-Lin (KL) algorithm is:

- ☐ Partition-1: a, e, f, g. Partition-2: b, c, d, h  
☐ Partition-1: a, c, e, g. Partition-2: b, d, f, h  
☐ Partition-1: a, c, g, h. Partition-2: b, d, e, f  
☐ Partition-1: c, d, f, g. Partition-2: a, b, e, h

No, the answer is incorrect.

Score: 0

Accepted Answers:

Partition-1: a, c, e, g. Partition-2: b, d, f, h

7) For Q6, the absolute gain (g) at the end of the third iteration is:

2 points

- ☐ -2  
☐ 2  
☐ -1  
☐ 1

No, the answer is incorrect.

Score: 0

Accepted Answers:

-2

8) For Q6, the final partition and cut-size is:

2 points

- ☐ Partition-1: a, b, c, h. Partition-2: d, f, g, e and cut-size: 2
- ☐ Partition-1: a, f, c, e. Partition-2: d, b, g, h and cut-size: 1
- ☐ Partition-1: a, b, c, e. Partition-2: d, f, g, h and cut-size: 3
- ☐ Partition-1: a, b, g, h. Partition-2: d, f, c, e and cut-size: 4

**No, the answer is incorrect.****Score: 0****Accepted Answers:***Partition-1: a, b, c, e. Partition-2: d, f, g, h and cut-size: 3*[Previous Page](#)[End](#)

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