

# Unit 10 - Week 8

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**Week 8**

- Finite State Machine Synthesis: Introduction to FSM Encoding

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## Assignment 8

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

**Due on 2019-09-25, 23:59 IST.**

1) Which of the following are true regarding FSM Encoding? 2 points

- It reduces the area of an FSM
- It is a necessary step in implementing an FSM
- It converts a State Table to a Truth Table
- It minimises the number of states in an FSM

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
*It is a necessary step in implementing an FSM*  
*It converts a State Table to a Truth Table*

2) Which of the following affect the area directly when the target architecture of FSM synthesis is a Programmable Logic Array? 2 points

- Number of inputs to the FSM
- Number of outputs from the FSM
- Number of bits used in state encoding
- Number of literals

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
*Number of inputs to the FSM*  
*Number of outputs from the FSM*  
*Number of bits used in state encoding*

3) Identification of common cubes during Finite State Machine encoding is relevant because it could lead to lower area. 2 points

- TRUE
- FALSE

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
*TRUE*

4) What is the literal count in the boolean expression:  $ab + cb' + d$  2 points

- 5
- 6
- 3
- 4

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
*5*

5) Which of the following is a possible advantage of using 1-hot encoding for FSM states compared to using the minimum number of bits. 2 points

- Number of flip-flops will get reduced.
- The state table would have lesser number of rows.
- There is no need to decode the state, therefore combinational logic could be faster.
- There are more parallel paths, and hence the circuit is faster.

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
*There is no need to decode the state, therefore combinational logic could be faster.*

6) The expression  $(a'b' + b'c')$  has a higher literal count than the expression  $(ab + bc')$ . 2 points

- TRUE
- FALSE

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
*FALSE*