ECE 271: Chapter 3 Reading Report

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1 Chapter Outline

This chapter covers ...

1.1 Introduction

1.2 Latches and Flip-Flops

[Opening paragraph, if any]

1. **Latches and Flip-Flops**

2. **D Latch**

3. **D Flip-Flop**

4. **Register**

5. **Enabled Flip-Flop**

6. **Resettable Flip-Flop**

7. **Transistor-Level Latch and Flip-Flop Designs**

8. **Putting It All Together**

1.3 Synchronous Logic Design

[Opening paragraph, if any]

1. **Some Problematic Circuits**

2. **Synchronous Sequential Circuits**

3. **Synchronous and Asynchronous Circuits**

1.4 Finite State Machines

[Opening paragraph, if any]

1. **FSM Design Example**

2. **State Encodings**

3. **Moore and Mealy Machines**

4. **Factoring State Machines**

5. **Deriving an FSM from a Schematic**

6. **FSM Review**

1.5 Timing of Sequential Logic

[Opening paragraph, if any]

1. **The Dynamic Discipline**

2. **System Timing**

3. **Clock Skew**

4. **Metastability**

5. **Synchronizers**

6. **Derivation of Resolution Time**

1.6 Parallelism

1.7 Summary

2 Grey Box Exploration

1. The first blurb is on page ...

2. The second blurb is on page ...

3 Figures

Two figures were selected from this chapter for special recognition. Figure[...] was selected ... Figure[...] was selected ...

4   Example Problems

See the attached images on the next pages.

5   Glossary

All definitions were found from the Google search engine, typing "define ..." for the first item.

1. Circuit

   noun:

   (a) a roughly circular line, route, or movement that starts and finishes at the same place.
   (b) an established itinerary of events or venues used for a particular activity, typically involving public performance.

   verb:

   (a) move all the way around (a place or thing).

2. Boolean

   adjective:

   (a) denoting a system of algebraic notation used to represent logical propositions, especially in computing and electronics.

   noun:

   (a) a binary variable, having two possible values called "true" and "false."

3. Combination

   noun:

   (a) a joining or merging of different parts or qualities in which the component elements are individually distinct.
   (b) a sequence of numbers or letters used to open a combination lock.

4. Axiom

   noun:

   (a) a statement or proposition that is regarded as being established, accepted, or self-evidently true.

5. Theorem

   noun:

   (a) a general proposition not self-evident but proved by a chain of reasoning; a truth established by means of accepted truths.

6 Interview Question

See the attached image on the next page.

7 Reflection

8 Questions for Lecture

1. What are the applications of multiplexers? Can you show me a real-life example of a multiplexer?

2. What determines which input will be taken into account in a tristate buffer?

3. Electronic devices, such as smartphones, are getting smaller and faster but also more expensive. Do you favor speed or cost?

References