Csc 317
Exam Review Sheet
Exam Date: 4/10/2024

The exam will cover chapters 3 – 4 in the text.

Chapter 3 – read sections 3.1 – 3.6, 3.10, & 3.11

Be prepared to answer general knowledge questions from the chapter, examples are:

1. How do we multiply two numbers in hardware?
    a. Do not memorize word for word, I just want you to understand the process. What are the multiplier and multiplicand, how the process works using a shift register, and so on. Flow chart in Figure 3.4 gives the basic idea.
2. Floating point representations
    a. I expect that you understand IEEE single and double precision formats. What are the three parts of a floating-point number? How does excess notation work for exponents.
    b. Expect to convert a simple floating-point number to IEEE single or double precision format.
    c. Expect to convert back to floating-point representation.
3. Rounding with guard digits.
4. Understand the basic concept of Subword Parallelism (Section 3.6). Do not memorize instruction formats, instead you should be able to describe how they work and why they are used.
5. Fallacies and Pitfalls
    a. Read carefully, this section will offer at least two questions on the exam.

Chapter 4 – read all except 4.6 to 4.9 and 4.12 (should look at figure 4.32 in section 4.6, but you do not need to read the entire section)

1. Using Figure 4.2 make sure you can identify the operation being performed at each stage of a pipelined processor.
2. What is a Datapath and how do we build?
3. Pipelining, what is it and why do we use it! The more times you read section 4.5 the better you will do on the exam.
4. Know the three types of hazards (Structural, Data, and Control).
5. What is a stall and how do we deal with them. If you can explain figure 4.30, you are ready!
6. How do pipelining and Instruction Level Parallelism work?

The exam will be a combination of problems to solve, short answer questions, and a short code segment to analyze similar to assignments 3 and 4. I would attempt all the Check Yourself questions in the chapters (answers at end of chapter) as they would make good test questions.