

Comp 222
Sample Final Exam

1. Describe the machine cycle of a von Neumann machine, including the retrieval of the data items. As part of this description, draw the Instruction Cycle State Diagram including Interrupt Processing. (10 points)

2. For each of the following Cache Memory Systems, describe the advantages & disadvantages of the particular system
 - a. Direct Mapped Cache System (10 points)
 - i. Advantages

 - ii. Disadvantages

 - b. Associative Mapped Cache System (10 points)
 - i. Advantages

 - ii. Disadvantages

 - c. Set-Associative Mapped Cache System (10 points)
 - i. Advantages

 - ii. Disadvantages

3. Describe how a Superscalar System uses a “Window” to process statements with Out-of-Order Issue and Out-of-Order Completion.

4. Describe how interleaved DRAM memory chips provide for improved main memory performance.