CS286-Computer Organization & Architecture
Possible Quiz Questions (Quiz #9)
For October 29th

The following is a list of possible questions for our quiz on October 29th. Some of the questions will not be asked in the quiz. All the questions that will appear in the quiz will appear exactly as shown below (however, numeric parameters may be changed). The quiz is closed textbook, closed notes and closed neighbors. Note that the questions, which did not appear in this quiz, still may appear in the exams. You will find a solution for these questions during lectures.

Part I: Memory subsystem

#1: How is “dirty flag” used in virtual memory for?

#2: Sketch the structure of “segmentation table (or “segmentation descriptor table””).

#3: What is the advantage of using segmentation?

#4: How is “segmentation fault” caused?

#5: Which of “page fault” or “segmentation fault” is fatal?

#6: In the virtual memory (as we discussed in the classroom), how many disk accesses can happen in the worst case (assuming that the concept of the virtual memory is applied to storing the VMT in memory)?

#7: What is “locality in memory reference”? What are the two different types of “locality”? 

#8: How software developers take advantage of “locality memory reference” when they are designing application programs?

#9: What is “sequential memory access”? Mention the name of data structure that is accesses using the concept of “sequential memory access”?

#10: What is “random memory access”? Mention the name of data structure that is accesses using the concept of “random memory access”?

(Part II of this list is on the back of this handout)
Part II: I/O subsystem

#11: Complete the following table:

<table>
<thead>
<tr>
<th>FROM</th>
<th>TO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memory</td>
<td>I/O Device</td>
</tr>
<tr>
<td>I/O Device</td>
<td>Memory</td>
</tr>
</tbody>
</table>

#12: Describe the procedure of an interrupt (i.e., describe the four steps in an interrupt).

#13: What are the major problems in dealing with I/O devices using interrupts?

#14: What is “programmed I/O”?

#15: Describe how “programmed I/O” works (the four steps).

#16: What does “DMA” stand for?

#17: What are the two primary advantages in using DMA for processing I/O events?

#18: What is the primary disadvantage in DMA I/O devices?

#19: How is “polling” different from “interrupt”? 

#20: What is the advantage(s) and disadvantage(s) of “polling” (compared to “interrupt”)?