Possible Quiz Questions (Quiz #9)
For November 10th

The following is a list of possible questions for our quiz on November 10th. 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.

#1: Sketch the contents in VMT (virtual memory table).

#2: What is the primary problem in virtual memory?

#3: What is “the internal memory fragmentation”?

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

#5: What is “demand paging”? What is the primary advantage?

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

#7: What does “TLB” stand for?

#8: In the virtual memory (as we discussed in the classroom), how many disk accesses can happen in the worst case?

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

#10: What is the advantage of using segmentation?

#11: How is “segmentation fault” caused?

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

#13: What is “pipeline memory accesses”? What is “memory interleaving” (make sure to emphasize the difference from “pipeline memory accesses”)?
#14: Complete the following table:

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

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

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

#17: What is “programmed I/O”?

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

#19: What does “DMA” stand for?

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

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

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

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

#24: Complete the following table by comparing the performance of interrupt, polling, and DMA (specify “best”, “second best” and “worst” for each of the four performance factors).