Study Guide for Week #12

Note: This is NOT a quiz question list
The next quiz question list will be e-mailed to each of you later.

#1: What are “processor-bound programs”? Mention one example for “processor-bound programs”.

#2: What are “I/O-bound programs”? Mention one example for “I/O-bound programs”. Why upgrading a processor (to a more powerful one) won’t help for improving the performance (execution time) for I/O-bound programs?

#3: What is “the system bus” (especially the one that is “printed” on the surface of a computer motherboard?

#4: Complete the following table:

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

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

#6: What is “context switch”? What does a processor actually do during a context-switching?

#7: How many context-switching will be performed for each “interrupt”?

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

#9: What is “programmed I/O”?

#10: Describe how “programmed I/O” works (the four steps).
#11: What does “DMA” stand for?

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

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

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

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

#16: What is “the service routine table”?

#17: What is “IRR (Interrupt Request Register)”?

#18: What is “device driver”?

#20: Most of the computer systems assign “interrupt number (it is “IRQ” for IBM-compatible personal computers). What are the advantages of managing I/O devices using unique integers?

#21: The interrupt table contains the address of the program, each of which is used to service I/O requests at each specific I/O card. The program is also known as something else. How is the program called?

#22: When an interrupt occurs while a user program is being executed by a processor, the stack area in the user program is used, but why?