The following is a list of possible questions for our Quiz #8. 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: 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 are I/O devices? Mention at least two examples for the following types of I/O devices:

(a) I/O devices that are used only for inputs

(b) I/O devices that are used only for outputs

(c) I/O devices that are used only for both inputs and outputs

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

#5: What are the two primary factors that determine the performance (throughput) of system buses?

#6: Complete the following table:

<table>
<thead>
<tr>
<th>FROM</th>
<th>I/O Device</th>
<th>Memory</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>
#7: Describe the procedure of an interrupt (i.e., describe the four steps in an interrupt).

#8: Why do many computer systems use “interrupts” for dealing with incoming inputs (what is the advantage in using “interrupt”)?

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

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

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

#12: What is “programmed I/O”?

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

#14: What does “DMA” stand for?

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

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

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

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

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

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

#21: What is “device driver”?

#22: 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?

#23: 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?

#24: 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?