Quiz - Introduction to I/O

Total points 26/26

Take the quiz solo, but feel free to consult a partner student, the book, the videos or other resources if needed. Re-take quiz if your score is less than 80% or if you just want some more practice.

The respondent's email (**faiyaz@pdx.edu**) was recorded on submission of this form.

✓ OS developers generally assume that I/O is slow * 5/5

- (●) True ✓
- ( ) False

I/O buses can either be shorter or longer. Match each type of bus with its corresponding categories. *

	Shorter Bus	Longer Bus	Score	
more devices can be connected to it	( )	(●)	1/1	✓
less expensive	( )	(●)	1/1	✓
more expensive	(●)	( )	1/1	✓
slower	( )	(●)	1/1	✓
faster	(●)	( )	1/1	✓

✓ Which statement best characterizes "Programmed I/O"? * 5/5

- the I/O device can handle all of the data transfer itself and only notify/interrupt the CPU when the complete sequence of transfers is complete.
- the CPU can do other work and not block while I/O operations complete
- **the CPU synchronously interacts with the I/O device and controls the timing of each I/O operation** ✓
- the CPU gets an asynchronous notification after each individual I/O operation completes

✓ Identify one benefit of memory-mapped I/O * 5/5

- avoids system calls
- **allows the programmer to use memory reads/writes to update the file** ✓
- increases use of read() and write() system calls
- allows read-only files to be shared across processes efficiently
- increases security by avoiding system calls

Which type of I/O is preferred in each case? *

	Programmed I/O	Interrupt-driven I/O	DMA	Score	
when the I/O device has very fast bursts	◉	○	○	1/1	✓
when the excessive I/O interrupts might slow down the system	◉	○	○	1/1	✓
when the I/O device is very slow	○	◉	○	1/1	✓
when interrupts are rare	○	○	◉	1/1	✓
when the I/O device is capable of transferring large amounts of data	○	○	◉	1/1	✓
when the I/O device is trusted to make independent memory reads and writes	○	○	◉	1/1	✓