

Questions on Signals, Pipes, Redirections

When a hardware interrupt happens, a process may go from blocked to ready state. [T/F]
(multiple choice question with SINGLE correct answer)

- A. True
- B. False

Which of these examples can cause a hardware interrupt? Select all that apply.
(multiple choice question with multiple correct answers)

- A. Clock tick or pulse
- B. Completion of disk operation
- C. Network message has arrived
- D. Illegal memory access by user level process

Which of the following correctly contrasts interrupt handlers and system calls? Select all that apply.

(multiple choice question with MULTIPLE correct answers)

- A. System calls have return values while interrupt handlers do not.
- B. Context switch happens for system calls but not interrupt handlers.
- C. Both interrupt handlers and system calls require context switching.

Is the following statement true or false? Select the best answer.

Custom handlers are code in user space written to process signals sent to a process.

- A. True
- B. False

Is the following statement true or false? Select the best answer.

All signals from one process to another goes through the kernel.

- A. True
- B. False

Is the following statement true or false? Select the best answer.

Signals that are blocked by the operating system are lost forever.

- A. True
- B. False

Interrupts are only initiated by currently running processes.

(multiple choice question with SINGLE correct answer)

- A. True
- B. False

Blocked signals are lost permanently.

(multiple choice question with SINGLE correct answer)

- A. True
- B. False

Which of the following is not an example signal that originates from a hardware interrupt?

- A. Clock pulse for updating system time
- B. Input from keyboard, network, or disk
- C. Illegal memory access
- D. SIGINT signal from one process to another

Is the following statement true or false? Select the best answer.

STDIN and STDOUT are file descriptors made available to a process.

(multiple choice with SINGLE correct answer)

- A. True
- B. False

Consider a command `pwd < out`, where `out` is a valid text file, and `pwd` prints the current path. When you type it in a shell, what is the expected output? Select the best answer.

- A. Prints the contents of `out`
- B. Invalid command
- C. The shell ignores `out` and just prints the current path

Suppose you have a command that takes in an argument (e.g. `sleep()`) and you run “`sleep 10 < file.txt`”. When you type it in a shell, what is the expected behaviour if the contents of `file.txt` is “100” and nothing else? Select the best answer.

- A. Sleeps for 10 seconds
- B. Invalid command
- C. Sleeps for 100 seconds

What is the output of `ls | pwd`? Select the best answer.

- A. We list all files in the current directory, and `pwd` is ignored.
- B. Throws an error
- C. The current path is printed out.

What is the behavior of `ls | more > out`? Select the best answer.

- A. `ls` runs to list all the directories. If more than fit into a page, the user has to press space to continue until all the files are listed. The output is stored in the file `out`.
- B. `ls` runs to list all directories. Even if more than a page is needed, the user does not press any keys, and all the listed files are stored in the file `out`.
- C. Throw an error.

Is the following statement true or false? Select the best answer.

A ctrl-C signal will be sent to an entire process group.

- A. True
- B. False

Is the following statement true or false? Select the best answer.

A pipeline of processes `A | B | C` are in the same process group.

- A. True
- B. False

Which of the following commands are illegal or will cause the process to be stopped? Select the best answer.

- A. ls > out
- B. ls > out &
- C. cat &
- D. ls | pwd &

Is the following statement true or false? Select the best answer.
When a process is stopped, a SIGCHLD signal is sent to the parent.

- A. True
- B. False