



Universidad Carlos III de Madrid
Computer Science and Engineering Department
Operating Systems Course



Answer the test in the next table. Each three wrong answers will rest 1 right answer.

NAME:

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QUESTIONS

- 1.- Select the correct answer regarding the readers-writers problem.
A) Readers can have concurrency while only one writer can perform any operation when it is being executed
B) A reader can only be executed when there are no other readers that are waiting for execution.
C) If a reader performs a request while a writer is being executed, it will be executed the first after the write operation is finished.
D) When readers have priority, read operations can enter the critical section as long as there is another read in the critical section and no writer requests, because as soon as a writer appears it will be executed before any other read.

- 2.- What is the correct answer ?
Critical sections....
A) There may be overloaded due to too many processes entering at them at the same time
B) They have to be as large as possible.
C) There is risk of starvation (a process never enters in the critical section)
D) They increase the level of parallelism

- 3.- What of the following advantages does not typically belong to concurrent execution?
A) Improves application interactivity
B) Improves computer energy efficiency
C) Improves CPU utilization
D) Accelerates computation execution

- 4.- How the base and limit registers of process can be changed?
A) Only the Operating System can set these registers
B) The process loads these registers on the beginning of the execution
C) The process can change them during its execution.
D) The registers cannot be changed

- 5.- SIGILL, SIGALRM and SIGKILL are examples of a basic element in inter-process communication, ¿which one?
A) Exceptions
B) Timers
C) Signals
D) Pipes

- 6.- The memory management unit (MMU)...
A) Is a hardware device that maps physical to virtual memory
B) Provides hardware support to the OS memory management

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- C) Is a component present only in Unix like systems
- D) None of the answers is correct

7.- For the fork() system call in Linux, which of the following is true?

- A)The fork() process takes in an argument and returns a process ID.
- B)The process ID of the parent process is 0.
- C)A child process is created but it does not execute the fork() function.
- D)When fork() is executed, an identical copy of its address space is created as well as its PCB.

8.- Paging is a memory-management scheme that...

- A) Involves breaking physical memory into fixed-sized blocks called pages and breaking logical memory into blocks of different size called frames.
- B) Stores the information regarding the allocation details of physical memory (frames allocated, frames available, total frames) in the translation look-aside buffer (TLB).
- C) Has the disadvantage of not allowing to share common code, being a drawback for time-sharing environments.
- D) When page tables are too large due to a large logical address space, the two-level algorithm can be used to split the page table into smaller pieces.

9.- What is SWAP used for in the lifecycle of a process?

- A)To backup a process in secondary storage
- B)To improve performance by sending some processes to swap area
- C)To make the threads of a process easily configurable by means of an STD
- D)To make the system boot faster

10.- A symbolic link...

- A)Cannot be deleted
- B)Doesn't contain a pointer to an i-node
- C)It is a file copy
- D)Contain a pointer to an i-node

11.- Which of the following statements about POSIX is FALSE?

- A)The POSIX standard is based in C, so you can not use it to throw exceptions.
- B)It is a way to implement code.
- C)It references resources using numeric descriptors.
- D)It allows portability across platforms.

12.- A user owner of a file with uid=12 and gid=1 has set the following attributed: rwxr-x---. Another user with uid=3 and gid=1 wants to execute it. It is possible?

- A)Always
- B)Never
- C)Only if its uid is also 12
- D)None user (including the owner) can execute the file

13.- Select the INCORRECT answer:

An interrupt handler (interrupt service routine)...

- A)Executes an especific service.
- B)Determines address of service routine.
- C)Retrieves parameters sent by the user process.
- D)Transfers control to service routine.

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14.- Assuming you have in memory only the superblock, the directories are small (fits in a block) and involved the entire directory is in the same volume or partition, say how many disk accesses are needed in the following operation: `open (/ etc / src / foo / ajedrez.c, O_RDONLY)`

- A)5
- B)7
- C)9
- D)10

15.- Timesharing (or multitasking), is a logical operation done by the CPU that

- A)synchronizes the time of the computer among processes that have real time functionalities.
- B)parallelizes the execution of several processes, overlapped in the same time frame.
- C)switches the execution of the processes so fast that the user believes to be interacting with them as if it was in parallel.
- D)performs various operations within a single clock cycle.