

CSCI 331: *Operating Systems*
Midterm #2-- closed book section

The entire exam is to be turned in at 8:30PM. Work the closed book section first and turn it in before you consult your books and notes to work on the open book section. For the closed book section, write your answers on the exam itself.

There are twenty questions on *two* pages. Each is worth two and one half (2.5) points. Choose the *most* appropriate phrase for terminating each sentence. Circle your choice.

Name: _____

The command for compiling a C program is

- A: **make**.
- B: **c**.
- C: **cc**.
- D: **compile**.

The compiled code of a C program is stored

- A: in the data segment.
- B: in the stack segment.
- C: in the text segment.
- D: in the object segment.

New system file table entries are allocated when the kernel performs

- A: the **dup** system call.
- B: the **fork** system call.
- C: the **open** system call.
- D: the **read** system call.

The data segment of a process is copied when the kernel performs

- A: the **dup** system call.
- B: the **execve** system call.
- C: the **fork** system call.
- D: the **spawn** system call.

A process is

- A: a compiled program.
- B: a program in execution.
- C: a job in the Unix operating system.
- D: a series of system calls.

In Unix, information about a process that is needed by the kernel when the process is swapped out, must be stored

- A: in the process table.
- B: in the file table.
- C: in the user area.
- D: in the stack segment.

A context switch always occurs

- A: at the execution of the **close** system call.
- B: at the execution of the **exit** system call.
- C: at the execution of the **fork** system call.
- D: when there is a device interrupt.

In system calls, an open file is identified by

- A: a file descriptor.
- B: the file's pathname.
- C: a pointer to the I/O buffer.
- D: a data control block.

As a Unix process runs its priority decreases

- A: exponentially.
- B: quadratically.
- C: linearly.
- D: radically, dude.

The nearest thing to a process ``interrupt'' is

- A: a signal.
- B: a machine exception.
- C: a system call.
- D: involuntary swapping.

If you write C code that divides by zero, your process will

- A: invoke the signal handler.
- B: stall the CPU's floating point unit.
- C: produce a core dump.
- D: be sent a signal.

The special code that actually calls a signal handler in user mode is

- A: the signal switch table.
- B: the **sendsig** routine.
- C: the signal-trampoline code.
- D: the signal prologue.

The addresses actually stored in valid C pointers are

- A: real addresses.
- B: virtual addresses.
- C: imaginary addresses.
- D: segment bases.

A memory-management policy that supports only swapping (and not paging) can not

- A: run interactive process.
- B: run processes larger than real memory.
- C: use page tables.
- D: support processes that grow dynamically.

The page table of a process is constructed by

- A: memory-management library routines, *e.g.*, **malloc** and **calloc**.
- B: the page daemon.
- C: the kernel.
- D: the **execve** system call.

In order to speed up address translation, most modern computers support

- A: translation lookaside buffers.
- B: translation lookahead buffers.
- C: translation lookup buffers.
- D: translation lookout buffers.

The most likely pages to be replaced are those which

- A: have been in memory for a long time.
- B: have been unreferenced for a long time.
- C: have not been written for a long time.
- D: are owned by only one user process.

The two types of devices in Unix are

- A: real and virtual.
- B: terminal and disk.
- C: interrupt-driven and polled.
- D: character and block.

The modes (access permissions) of a file are stored in

- A: the file's inode.
- B: the directory's inode.
- C: the file's data blocks.
- D: the directory's data blocks.

The Unix file system attempts to optimize the layout of

- A: frequently-used files.
- B: files in the root directory.
- C: small files.
- D: large files.