Midterm1

Due No due date **Points** 12.3 **Questions** 23
Available Oct 19 at 10:05am - Oct 19 at 10:45am 40 minutes **Time Limit** 40 Minutes

This quiz was locked Oct 19 at 10:45am.

Attempt History

	Attempt	Time	Score
LATEST	Attempt 1	32 minutes	8.5 out of 12.3 *

* Some questions not yet graded

Score for this quiz: **8.5** out of 12.3 *
Submitted Oct 19 at 10:37am
This attempt took 32 minutes.

Question 1 — 0.4 / 0.4 pts

UNIX fork does all the following except

Correct!

- (◉) Initialize the address space with a copy of only part of the contents of the address space of the parent
- ( ) Create and initialize the process control block in the kernel

Create a new address space

Inherit the execution context of the parent

Question 2

0 / 0.4 pts

Banker's algorithm is a solution of which of the following type

Correct Answer

Deadlock avoidance

Deadlock recovery

You Answered

Deadlock prevention

Deadlock detection

Question 3

0.4 / 0.4 pts

A lock should ensure the following three properties except

Progress

Correct!

Thread ordering

- Mutual exclusion
- Bounded waiting

Question 4

0.4 / 0.4 pts

Involuntary thread context switch has to perform three steps including (i) Chooses another thread to run; (ii) Save the state of the running thread; (iii) Restoring the state of the thread to the processor. The correct order of the steps is:

- iii, i, ii
- ii, iii, i
- **ii, i, iii** — Correct!
- i, ii, iii

Question 5

0.4 / 0.4 pts

Thread TCB includes the following information except

- Copy of processor registers

Per-thread metadata

Thread stack

Correct! Thread source code

Question 6

0 / 0.4 pts

All of the following can be used to implement multi-threaded processes except

Multi-threaded processes using kernel threads

Correct Answer Multi-threaded processes using kernel processes

You Answered User-level threads without kernel support

User-level threads with kernel support

Question 7

0.4 / 0.4 pts

Kernel to user mode transfer can be triggered due to

New process

Correct!

- (selected) ALL OF ABOVE
- Switch to a difference process
- Resume after an interrupt

Question 8

0.4 / 0.4 pts

At a minimum, the hardware must support the following except

Correct!

- (selected) Kernel threads
- Timer interrupts
- Priviledged instructions
- Memory protection

Question 9

0.4 / 0.4 pts

If an individual thread is unable to take advantage of the overlap of CPU and I/O operations, the OS can overlap the CPU execution of one thread with the I/O operation of other threads.

Correct!

- True
- False

Question 10

0.4 / 0.4 pts

most system crashes are due to bugs in device drivers rather than in the operating system itself.

Correct!

- True
- False

Question 11

0 / 0.4 pts

The interrupt hander is a kind of kernel thread.

You Answered

- True

Correct Answer

- False

Question 12

0.4 / 0.4 pts

Almost all commercial operating systems today support kernel-supported threads.

Correct!

- (●) True
- ( ) False

Question 13

0 / 0.4 pts

Lock variable is sufficient to solve all synchronization problems.

You Answered

- (●) True

Correct Answer

- ( ) False

Question 14

0 / 0.4 pts

Deadlock happens mostly due to inappropriate OS implementation by programmers.

You Answered

- (●) True

Correct Answer

False

Question 15

0.8 / 1.6 pts

After being put in the ready list, a thread is in [Select] state. If an I/O event occurs, it transfers to [Select] state. During [Select] state, a thread may be voluntarily or involuntarily switched to [Select] state.

Answer 1:

Correct Answer

READY

You Answered

WAITING

Answer 2:

You Answered

RUNNING

Correct Answer

WAITING

Answer 3:

Correct!

RUNNING

Answer 4:

Correct!

READY

Question 16

0 / 0.4 pts

All of the following are atomic operations except

Correct Answer

- lock1.acquire() and lock2.acquire()
- lock.acquire and enter critical section
- Unix file open, i.e., check if it exists, create if it does not exist, and then open the file

You Answered

- Test and Set instruction

Question 17

0.4 / 0.4 pts

All of the following are possible approaches of inter-process communication except

- Network messaging

Correct!

- Multi-threading
- File read/write

pipe

Question 18

1 / 1 pts

The three "formal" properties "M-P-B" that must be satisfied for a lock are mutual exclusion , progress , and bounded waiting , respectively. Here M, P, and B are the first letter of each of the three properties.

Answer 1:

Correct!

Mutual Exclusion

Correct Answer

mutual exclusion

Answer 2:

Correct!

Progress

Correct Answer

progress

Answer 3:

Correct!

Bounded waiting

Correct Answer

bounded waiting

Question 19

1.2 / 1.5 pts

The three operations on a condition variable are, **in alphabetic order**, broadcast , signal , waiting , where signal is used to unblock one waiting thread and broadcast is used to unblock "all" waiting threads for a specific variable.

Note: use lower case for all answers.

Answer 1:

Correct!

broadcast

Correct Answer

broadcast()

Answer 2:

Correct!

signal

Correct Answer

signal()

Answer 3:

You Answered

waiting

Correct Answer

wait

Correct Answer

wait()

Answer 4:

Correct!

signal

Correct Answer

signal()

Answer 5:

Correct!

broadcast

Correct Answer

broadcast()

Unanswered

Question 20

0 / 0.4 pts

An alternative approach to multi-threading for concurrency is called [ ] -driven programming, which uses asynchronous I/O.

Answer 1:

You Answered

(You left this blank)

Correct Answer

event

Correct Answer

events

Question 21

0.5 / 0.5 pts

Which of the choice include all possible outcomes of the following program? x is initialized to 0.

Thread A Thread B

x = x + 1; x = x + 2;

- 1,3
- 1,2
- 2,3
- 1,2,3

Correct!

Question 22

0.4 / 0.4 pts

The data structure that stores all the information the operating system needs about a particular process is called process control bloc (no abbreviation), and similarly, the data structure that stores all the information the operating system needs about a particular thread is called thread control block (no abbreviation).

Answer 1:

Correct! process control block

Correct Answer Process control block

Answer 2:

Correct! thread control block

Correct Answer Thread control block

Question 23

0.6 / 0.6 pts

In [user] mode, the processor checks each instruction before executing it to verify that it is permitted to be performed by that process. In [kernel] mode, the operating systems executes with protection checks turned off. Together, this is called [dual] -mode operation.

Answer 1:

Correct! user

Answer 2:

Correct! kernel

Correct Answer kernal

Answer 3:

Correct!

dual

Quiz Score: **8.5** out of 12.3