

CS341-OperatingSystemQuiz-1 2021

Total points 48/90

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Which of the following need not necessarily be saved on a context switch between processes?

2/2

General purpose registers

Translation look-aside buffer

Correct

Program counter

All of the above

command interpreter allows an user to create and manage processes

1/1

True

Correct

False

The modular kernel approach requires subsystems to interact with each other through carefully constructed interfaces that are typically narrow

1/1

True

Correct

False

JVM interprets the bytecode instructions one at a time.

1/1

True

Correct

False

An interrupt can be used to signal the completion of an I/O to obviate the need for device polling

2/2

YES

Correct

NO

A process is represented by the PCB (Process Control Block) or PD (Process Descriptor), which does not contain

0/3

Program Counter

Processor Status Word

Stack Pointer

Registers

Memory addressing registers

Exception address

Other:

In a multiprocessor system, different processors might be caching the same memory location in its local caches. When updates are made, the other cached locations need not be invalidated or updated.

0/1

True

False

Which of the following does not interrupt a running process?

2/2

A device

Scheduler process

Correct

Timer

Power failure

Other:

Which of the following statements is incorrect

.../2

Virtual memory implements the translation of a program's address space into physical memory address space

Virtual memory allows each program to exceed the size of the primary memory

Incorrect

Virtual memory increases the degree of multiprogramming

Virtual memory reduces the context switching overhead

All are Correct

Other:

Increasing the associativity of a Cache is the best way to improve the hit rate when accessing values from an array in order.

0/2

True

Incorrect

False

In DMA, the device and the CPU can not be accessing memory simultaneously

1/1

True

False

Correct

Some computer systems do not provide a privileged mode of operation in hardware. It means that all programs be written in high-level languages so that all object code is compiler-produced. The compiler would generate (either in-line or by function calls) the protection checks that the hardware is missing.

1/1

True

Correct

False

Which of the following not true for an interrupt

0/2

An interrupt is a hardware-generated change-of-flow within the system.

An interrupt handler is summoned to deal with the cause of the interrupt
control is returned to the interrupted context and instruction.

Incorrect

Can not be to catch arithmetic errors
can be used to call operating system routines
Other:

A thread is usually defined as a 'light weight process' because an operating system (OS) maintains smaller data structures for a thread than for a process. In relation to this, which of the followings is correct

3/3

On per-thread basis, the OS does not maintain virtual memory state

Correct

On per-thread basis, the OS maintains only CPU register state

The OS does not maintain a separate stack for each thread

On per thread basis, the OS maintains only scheduling and accounting information

Other:

Parameters can be placed, or pushed, onto the stack by the program, and popped off the stack by the operating system.

1/1

True

Correct

False

Registers pass starting addresses of blocks of parameters

1/1

True

Correct

False

We use dynamic memory because storing data on the stack requires knowing the size of that data at compile time

2/2

True

Correct

False

Some computer systems do not provide a privileged mode of operation in hardware. Software interpretation of all user programs (like some BASIC, Java, and LISP systems, for example). The software interpreter would provide, in software, what the hardware does not provide.

0/1

True

False

Incorrect

In a typical computer System which implements virtual memory the page size is (Ans: X k

.../2

4

Incorrect

In Interactive OS, Which of the following statements is incorrect

.../2

This system is composed of many short transactions

Incorrect

the results of the next transaction may be unpredictable

Response time needs to be short

All are Correct

Other:

In distributed systems, consistency problems might arise when a client caches file data.

1/1

True

Correct

False

The issue of resource utilization shows up in different forms in different types of operating systems. List what resources must be managed carefully in the following settings: In mainframe which of following is resources must be managed carefully in the following settings

.../1

memory

CPU resources

storage

Incorrect

network bandwidth

All of the above

Other:

A trap can be used to call operating system routines

2/2

YES

Correct

NO

Caches are useful when two or more components need to exchange data

1/1

True

Correct

False

In OS, Mechanism and policy must be separate to ensure that systems are easy to modify.

1/1

True

Correct

False

Caches solve the transfer problem by providing a buffer of intermediate speed between the components

1/1

True

Correct

False

Virtual machines also provide a good platform for operating system research since many different operating systems may run on one physical system.

1/1

True

Correct

False

Linux is an example of

2/2

MicroKernel OS

Monolithic

Correct

Layered OS

Hybrid OS

In Microkernel adding a new service does not require modifying the kernel,

1/1

True

Correct

False

A clustered system is less tightly coupled than a multiprocessor system.

1/1

True

Correct

False

A Microkernel is more secure as more operations are done in user mode than in kernel mode

1/1

True

Correct

False

..... OS provides operating system features such as file sharing

.../2

networking

Incorrect

A guest operating system provides its services by mapping them onto the functionality provided by the host operating system.

1/1

True

Correct

False

Assuming the following dynamic instruction frequency for a program running on the single-cycle MIPS processor Add- 25%; addi- 25%; beq- 10%; lw-25%; sw- 15% In what fraction of cycles is the sign extend circuit used?? Give answer XX%

.../3

40

Incorrect

Roll Number *

1801CS37

Asymmetric multiprocessing has one master CPU and the remainder CPUs are slaves

1/1

True

Correct

False

In distributed systems, consistency of cached memory values is not an issue.

0/1

True

False

Incorrect

CMU Mach is an example of

3/3

MicroKernel OS

Correct

Monolithic

Layered OS

Hybrid OS

An user is able to develop a new command interpreter using the system-call interface provided by the operating system.

1/1

True

Correct

False

Windows NT is an example of

0/2

MicroKernel OS

Monolithic

Layered OS

Hybrid OS

Incorrect

The two models of interprocess communication are messagepassing model and the shared-memory model

1/1

True

Correct

False

The peer-to-peer model doesn't have such strict roles. All nodes in the system are considered peers and thus may act as either clients or servers - or both.

0/1

True

False

Incorrect

Kernel functions, pick the odd one out

0/2

Management of processes

First level interrupt handling

DMA

Provide a mechanism of interaction between processes

Timer functions

Incorrect

Can we ensure the same degree of security in a time-shared machine as in a dedicated machine?

1/1

YES

NO

Correct

In order for two machines to provide a highly available service, the state on the two machines should be replicated and should be consistently updated.

0/1

True

False
Incorrect

Where does the swap space reside ?

2/2
Disk
Correct

RAM
On Chip Cache
ROM

In Batch OS, Which of the following statements is incorrect

.../2
Jobs with similar needs are batched together
uses automatic job sequencer
run through the computer as a group by an operator
good for executing large jobs that need little interaction
All are Correct
Incorrect

Other:

Name *
Sriram Pingali

Clustered systems communicate using messages, while processors in a multiprocessor system could not communicate using shared memory.

0/2
True
False

Symmetric multiprocessing treats all processors as equals, and I/O can be processed on any CPU

0/1
True
Incorrect

False

In single-processor systems, the memory needs to be updated when a processor issues updates to cached values.

1/1

True

Correct

False

The CPU can initiate a DMA operation by writing values into special registers that can be independently accessed by the device

1/1

True

Correct

False

In Microkernel, user programs and system services interact in a microkernel architecture by using interprocess communication mechanisms such as messaging.

0/1

True

False

In In Interactive OS, which of the following statements is incorrect OS, Which of the following statements is incorrect

.../2

This systems uses CPU scheduling and multiprogramming
provide economical interactive use of a system

The CPU switches rapidly from one user to another.

output is normally printed immediately to the screen.

All are Correct

Other:

In DMA, the device initiates the corresponding operation before receiving a command from the CPU.

0/1

True

Incorrect

False

The layered kernel approach is similar modular. However, the layered kernel imposes a strict ordering of subsystems such that subsystems at the lower layers are not allowed to invoke operations corresponding to the upper-layer subsystems

0/1

True

False

MULTICS is an example of

2/2

MicroKernel OS

Monolithic

time-sharing operating system

Correct

Hybrid OS

A trap is a software-generated interrupt

2/2

YES

Correct

NO

Command interpreter not part of the kernel

1/1

True

Correct

False

In a multiprogramming and time-sharing environment, several users share the system simultaneously. In relation to this, which of the followings is incorrect

0/2

It can result in various security problems security problems.

Stealing or copying one's programs or data

using system resources (CPU, memory, disk space, peripherals) without proper accounting

Incorrect

using system interrupt without proper accounting

Other:

Direct memory access can not be used for high-speed I/O devices in order to avoid increasing the CPU's execution load

1/1

True

False

Correct

.....OS often used in a dedicated application,

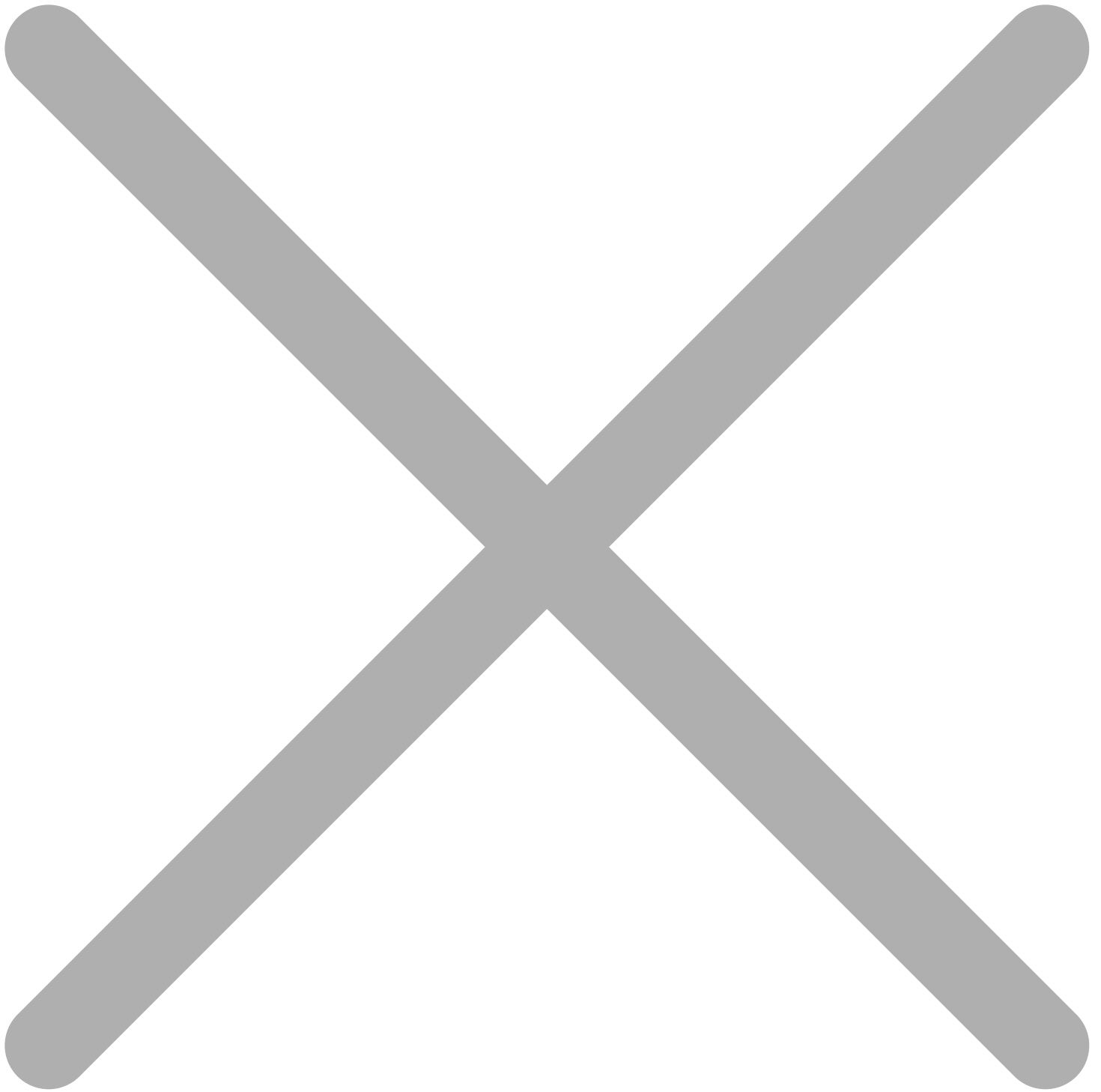
.../2

Real-Time

Incorrect

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