CS341-OperatingSystemQuiz-1 2021

Total points 48/90

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✓ We use dynamic memory because storing data on the stack requires knowing the size of that data at compile time 2/2

- (●) True ✓
- ( ) False

✗ In a multiprogramming and time-sharing environment, several usersshare 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
- ( ) using system interrupt without proper accounting
- ( ) 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

✓ In OS, Mechanism and policy must be separate to ensure that systems are easy to modify. 1/1

- (●) True ✓
- ( ) False

✗ In DMA, the device initiates the corresponding operation before receiving a command from the CPU. 0/1

- (●) True ✗
- ( ) False

✓ JVM interprets the bytecode instructions one at a time. 1/1

- (●) True ✓
- ( ) False

✓ An interrupt can be used to signal the completion of an I/O to obviate the need for device polling 2/2

- (●) YES ✓
- ( ) NO

✓ In Microkernal, user programs and system services interact in a microkernel architecture by using interprocess communication mechanisms such as messaging. 1/1

- (●) True ✓
- ( ) False

✗ In a typical computer System which implements virtual memory the page size is (Ans: X k ···/2

512 ✗

✗ 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 and the CPU can not be accessing memory simultaneously 0/1

- (●) True ✗
- ( ) False

✓ 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 ✓
- ( ) 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: .....

✓ Can we ensure the same degree of security in a time-shared machine as in a dedicated machine? 1/1

- ( ) YES
- (●) NO ✓

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✓ 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 ✓

✓ Where does the swap space reside ? 2/2

- (●) Disk ✓
- ( ) RAM
- ( ) On Chip Cache
- ( ) ROM

✗ Registers pass starting addresses of blocks of parameters 0/1

- ( ) True
- (●) False ✗

✓ A trap can be used to call operating system routines 2/2

- (●) YES ✓
- ( ) NO

✓ In single-processor systems, the memory needs to be updated when a processor issues updates to cached values. 1/1

- (●) True ✓
- ( ) False

✓ 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 ✓
- ( ) 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. 1/1

- (●) True ✓
- ( ) False

✓ A guest operating system provides its services by mapping them onto the functionality provided by the host operating system. 1/1

- (●) True ✓
- ( ) False

✗ Windows NT is an example of 0/2

- (●) MicroKernel OS ✗
- ( ) Monolithic
- ( ) Layered OS
- ( ) Hybrid OS

✓ The CPU can initiate a DMA operation by writing values into special registers that can be independently accessed by the device 1/1

- (●) True ✓
- ( ) False

✓ 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. 1/1

- (●) True ✓
- ( ) False

✗ .....OS often used in a dedicated application, ···/2

Linux ✗

✓ The modular kernel approach requires subsystems to interact with each other through carefully constructed interfaces that are typically narrow 1/1

- (●) True ✓
- ( ) False

✓ command interpreter allows an user to create and manage processes 1/1

- (●) True ✓
- ( ) False

✓ Clustered systems communicate using messages, while processors in a multiprocessor system could not communicate using shared memory. 2/2

- ( ) True
- (●) False ✓

✓ Caches solve the transfer problem by providing a buffer of intermediate speed between the components 1/1

- (●) True ✓
- ( ) False

✓ Parameters can be placed, or pushed, onto the stack by the program,and popped off the stack by the operating system. 1/1

- (●) True ✓
- ( ) False

✓ An user is able to develop a new command interpreter using the system-call interface provided by the operating system. 1/1

- (●) True ✓
- ( ) False

✓ Linux is an example of 2/2

- ( ) MicroKernel OS
- (●) Monolithic ✓
- ( ) Layered OS
- ( ) Hybrid OS

✗ 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 ✗
- ( ) 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 ✓
- ( ) False

✓ The two models of interprocess communication are messagepassing model and the shared-memory model 1/1

- (●) True ✓
- ( ) 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.
- ( ) Can not be to catch arithmetic errors
- ( ) can be used to call operating system routines
- ( ) Other: .....

✗ MULTICS is an example of 0/2

- ○ MicroKernel OS
- ◉ Monolithic ✗
- ○ time-sharing operating system
- ○ Hybrid OS

✓ CMU Mach is an example of 3/3

- ◉ MicroKernel OS ✓
- ○ Monolithic
- ○ Layered OS
- ○ Hybrid OS

✗ Which of the following does not interrupt a running process? 0/2

- ◉ A device ✗
- ○ Scheduler process
- ○ Timer
- ○ Power failure
- ○ Other: .....

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✓ In Microkernal adding a new service does not require modifying the kernel, 1/1

- (●) True ✓
- ( ) False

✓ In distributed systems, consistency of cached memory values is not an issue. 1/1

- (●) True ✓
- ( ) False

✓ Caches are useful when two or more components need to exchange data 1/1

- (●) True ✓
- ( ) False

✗ 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: .....

✓ A clustered system is less tightly coupled than a multiprocessor system. 1/1

- (●) True ✓
- ( ) 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
- ( ) network bandwidth
- ( ) All of the above
- ( ) Other: .....

✗ Which of the following need not necessarily be saved on a context switch between processes? 0/2

- (●) General purpose registers ✗
- ( ) Translation look-aside buffer
- ( ) Program counter
- ( ) All of the above

✓ A Microkernal is more secure as more operations are done in user mode than in kernel mode 1/1

- (●) True ✓
- ( ) 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

25 ✗

✗ 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
- ( ) Other:

✗ In Interactive OS, Which of the following statements is incorrect ···/2

- (●) This system is composed of many short transactions ✗
- ( ) the results of the next transaction may be unpredictable
- ( ) Response time needs to be short
- ( ) All are Correct
- ( ) Other:

✗ Symmetric multiprocessing treats all processors as equals, and I/O can be processed on any CPU 0/1

- (●) True ✗
- ( ) 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. 1/1

- (●) True ✓
- ( ) False

✗ ..... OS provides operating system features such as file sharing ···/2

Network ✗

✗ 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

✓ In distributed systems, consistency problems might arise when a client caches file data. 1/1

- (●) True ✓
- ( ) False

✓ A trap is a software-generated interrupt 2/2

- (●) YES ✓
- ( ) NO

✗ 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
- ( ) Virtual memory increases the degree of multiprogramming
- ( ) Virtual memory reduces the context switching overhead
- ( ) All are Correct
- ( ) Other: .....

✓ 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 1/1

- (●) True ✓
- ( ) False

✓ Asymmetric multiprocessing has one master CPU and the remainder CPUs are slaves 1/1

- (●) True ✓
- ( ) False

✓ Command interpreter not part of the kernel 1/1

- (●) True ✓
- ( ) False