

## Tests & Quizzes

### Final

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Part 1 of 1 -

100.0 Points

Question 1 of 100

1.0 Points

The top most directory in a Linux system is: \_\_\_\_\_





-  ☐ A. /
-  ☐ B. ~
-  ☐ C. /home
-  ☐ D. C:\

**Answer Key:** A

Question 2 of 100

1.0 Points

Which command would you use to display the contents of a file? \_\_\_\_\_



-  ☐ A. ls
-  ☐ B. mv
-  ☐ C. cat
-  ☐ D. cd

**Answer Key:** C

Question 3 of 100

1.0 Points

\$PATH is a: \_\_\_\_\_

-  ☐ A. command
-  ☐ B. environment variable

- ☒ C. directory
- ☒ D. username

**Answer Key:** B

Question 4 of 100

1.0 Points

Multiple copies of the same process would have different PIDs: \_\_\_\_\_

- ☒ A. true
- ☒ B. false

**Answer Key:** A

Question 5 of 100

1.0 Points

Another name for the Instruction Pointer (IP) is: \_\_\_\_\_

- ☒ A. PC
- ☒ B. stack pointer
- ☒ C. frame pointer
- ☒ D. pointer to a pointer

**Answer Key:** A

Question 6 of 100

1.0 Points

A process memory image contains: \_\_\_\_\_

- ☒ A. stack segment
- ☒ B. heap segment
- ☒ C. code segment
- ☒ D. all of the above

**Answer Key:** D

Question 7 of 100

1.0 Points

The trap table is set up by the OS: \_\_\_\_\_

- ✓ ☐ A. at boot time
- ✓ ☐ B. when a trap occurs
- ✓ ☐ C. when a new process is created
- ✓ ☐ D. on a context switch

**Answer Key:** A

Question 8 of 100

1.0 Points

The program P1 contains this code: `for (int i=0; i<2; i++) fork();` After the execution of this for loop, how many copies of P1 would exist in the system (including the original)?

- ✓ ☐ A. 1
- ✓ ☐ B. 2
- ✓ ☐ C. 3
- ✓ ☐ D. 4

**Answer Key:** D

Question 9 of 100

1.0 Points

A child process will always run: \_\_\_\_\_

- ✗ ☐ A. before the parent process
- ✓ ☐ B. after the parent process
- ✓ ☐ C. simultaneously with the parent process
- ✓ ☐ D. None of the above

**Answer Key:** D

Question 10 of 100

1.0 Points

An operating system manages: \_\_\_\_\_

- ✓ ☐ A. processes
- ✓ ☐ B. memory

- ☒ C. disk-space
- ☒ D. all of the above

**Answer Key:** D

Question 11 of 100

1.0 Points

When compiling a C program what is the correct order of operations:

- ☒ A. Compiler, Preprocessor, Linker, Assembler
- ☒ B. Compiler, Assembler, Preprocessor, Linker
- ☒ C. Preprocessor, Compiler, Assembler, Linker
- ☒ D. Preprocessor, Assembler, Compiler, Linker

**Answer Key:** C

Question 12 of 100

1.0 Points

The make utility can be best described as:

- ☒ A. a Compiler
- ☒ B. a Linker
- ☒ C. an Editor
- ☒ D. a management tool for your coding projects

**Answer Key:** D

Question 13 of 100

1.0 Points

The context switch routine would:

- ☒ A. save the registers of old process and then load those of the new process
- ☒ B. load the registers of the new process and then save those of the old one
- ☒ C. save the registers of new process and the load those of the old one
- ☒ D. load the registers of the old process and then save those of the new one

**Answer Key:** A

Question 14 of 100

1.0 Points

The kernel stack is used: \_\_\_\_\_

- ☒ A. when ever a process calls a function
- ☒ B. in a linked list
- ☒ C. in a context switch
- ☒ D. in a for loop

**Answer Key:** C

Question 15 of 100

1.0 Points

What prevents a process from executing privileged instructions: \_\_\_\_\_

- ☒ A. the timer interrupt
- ☒ B. the mode bit
- ☒ C. the trap instruction
- ☒ D. the user

**Answer Key:** B

Question 16 of 100

1.0 Points

Which of the following is not a scheduling policy: \_\_\_\_\_

- ☒ A. FIFO
- ☒ B. LIFO
- ☒ C. STCF
- ☒ D. SJF

**Answer Key:** B

Question 17 of 100

1.0 Points

A scheduler: \_\_\_\_\_

- ✓ ☐ A. manages memory
- ✓ ☐ B. manages interrupts
- ✓ ☐ C. manages users
- ✓ ☐ D. selects the next process to run

**Answer Key:** D

Question 18 of 100

1.0 Points

Turnaround time: \_\_\_\_\_

- ✓ ☐ A. does not include the the time a process has to wait in the system
- ✓ ☐ B. includes the time a process has to wait in the system
- ✗ ☐ C. is always equal to the length of the job
- ✓ ☐ D. is always less than the length of the job

**Answer Key:** B

Question 19 of 100

1.0 Points

SJF optimizes for: \_\_\_\_\_

- ✓ ☐ A. turnaround time
- ✗ ☐ B. response time
- ✓ ☐ C. user time
- ✓ ☐ D. real time

**Answer Key:** A

Question 20 of 100

1.0 Points

Which of the following is preemptive: \_\_\_\_\_

- ✓ ☐ A. FIFO
- ✗ ☐ B. SJF
- ✓ ☐ C. STCF

- ☒ ☐ D. FCFS

**Answer Key:** C

Question 21 of 100

1.0 Points

The fairest policy among the following is:

- ☒ ☐ A. STCF
- ☒ ☐ B. SJF
- ☒ ☐ C. FIFO
- ☒ ☒ D. RR

**Answer Key:** D

Question 22 of 100

1.0 Points

Decreasing Response Time will usually:

- ☒ ☒ A. Increase Turnaround Time
- ☒ ☐ B. Decrease Turnaround Time
- ☒ ☐ C. Leave Turnaround Time unchanged
- ☒ ☐ D. do nothing

**Answer Key:** A

Question 23 of 100

1.0 Points

MLFQ without priority boost would be:

- ☒ ☐ A. non-preemptive
- ☒ ☐ B. favoring CPU intensive jobs
- ☒ ☒ C. unfair
- ☒ ☐ D. none of the above

**Answer Key:** C

## Question 24 of 100

1.0 Points

When a job enters the system in MLFQ, it is placed: \_\_\_\_\_

- ☒ A. in the highest priority queue
- ☐ B. in the lowest priority queue
- ☐ C. in the middle queue
- ☐ D. in none of the above

**Answer Key:** A

## Question 25 of 100

1.0 Points

In MLFQ the priority of the process: \_\_\_\_\_

- ☒ A. remains fixed through out its lifetime
- ☐ B. changes according to its behaviour
- ☐ C. is determined by the user
- ☐ D. none of the above

**Answer Key:** B

## Question 26 of 100

1.0 Points

In MLFQ, the queues cannot have: \_\_\_\_\_

- ☒ A. the same number of processes
- ☐ B. more than one process
- ☐ C. zero processes
- ☐ D. the same priority

**Answer Key:** D

## Question 27 of 100

1.0 Points

The virtual address space of a process starts at address: \_\_\_\_\_

- ☒ A. 0
- ☐ B. 2K



- ☒ C. 32K
- ☒ D. Wherever the OS places that process in RAM

**Answer Key:** A

Question 28 of 100

1.0 Points

In C, executing the code (int \*p = &x;) would store in p: \_\_\_\_\_

- ☒ A. the value of variable x
- ☒ B. the physical address of variable x
- ☒ C. the virtual address of variable x
- ☒ D. the value pointed to by the variable x

**Answer Key:** C

Question 29 of 100

1.0 Points

The term Virtual Memory refers to: \_\_\_\_\_

- ☒ A. the RAM
- ☒ B. the process address space
- ☒ C. the hard disk
- ☒ D. the registers

**Answer Key:** B

Question 30 of 100

1.0 Points

Isolation means: \_\_\_\_\_

- ☒ A. only one process should run at a time
- ☒ B. only one process can be in RAM at a time
- ☒ C. each process has only one stack
- ☒ D. a process can only access its own allotted memory

**Answer Key:** D

## Question 31 of 100

1.0 Points

The memory on the stack is managed by the: \_\_\_\_\_

- ✓ ☐ A. compiler
- ✓ ☐ B. programmer
- ✗ ☒ C. operating system
- ✓ ☐ D. hardware

**Answer Key:** A

## Question 32 of 100

1.0 Points

In case of failure, malloc() will return: \_\_\_\_\_

- ✓ ☐ A. -1
- ✓ ☐ B. size of heap
- ✓ ☐ C. +1
- ✓ ☒ D. NULL

**Answer Key:** D

## Question 33 of 100

1.0 Points

If you call malloc() inside a function f() and don't call the corresponding free(), the memory allocated by malloc will:

- ✓ ☐ A. be free'd when the function f() returns
- ✓ ☒ B. be free'd when the process finishes execution
- ✓ ☐ C. never get free'd
- ✓ ☐ D. be free'd by the compiler

**Answer Key:** B

## Question 34 of 100

1.0 Points

To implement address translation we need: \_\_\_\_\_

- ✖ ☐ A. hardware support only
- ✔ ☐ B. software support only
- ✔ ☐ C. hardware as well as software support
- ✔ ☐ D. neither hardware nor software support

**Answer Key:** C

Question 35 of 100

1.0 Points

Address translation as we have studied, translates: \_\_\_\_\_

- ✔ ☐ A. from virtual to physical addresses
- ✔ ☐ B. from physical to virtual addresses
- ✔ ☐ C. from physical to virtual addresses as well as from virtual to physical
- ✔ ☐ D. from physical to physical addresses

**Answer Key:** A

Question 36 of 100

1.0 Points

Values in the base and bound registers can be modified by: \_\_\_\_\_

- ✔ ☐ A. the running process
- ✔ ☐ B. the programmer
- ✔ ☐ C. no body
- ✔ ☐ D. the OS

**Answer Key:** D

Question 37 of 100

1.0 Points

Segmentation solves the problem of: \_\_\_\_\_

- ✔ ☐ A. Internal fragmentation
- ✔ ☐ B. Isolation
- ✔ ☐ C. Segmentation faults
- ✔ ☐ D. Memory leaks

**Answer Key:** A

Question 38 of 100

1.0 Points

A process address space is usually: \_\_\_\_\_

- ☒ A. evenly populated
- ☒ B. densely populated
- ☒ C. sparsely populated
- ☒ D. none of the given choices

**Answer Key:** C

Question 39 of 100

1.0 Points

Coalescing means: \_\_\_\_\_

- ☒ A. splitting a chunk of memory in two
- ☒ B. merging two contiguous chunks of memory
- ☒ C. merging two non-contiguous chunks of memory
- ☒ D. initializing the linked list

**Answer Key:** B

Question 40 of 100

1.0 Points

A memory chunk allocated by the Binary Buddy allocator will always be: \_\_\_\_\_

- ☒ A. a power of 2 size
- ☒ B. of the same size
- ☒ C. of a different size
- ☒ D. none of the given choices

**Answer Key:** A

Question 41 of 100

1.0 Points

In paging the unit of division the physical RAM is called: \_\_\_\_\_

- ☒ A. a page
- ☒ B. a page frame
- ☒ C. a segment
- ☒ D. a memory unit

**Answer Key:** B

Question 42 of 100

1.0 Points

In the virtual address space of a process, the pages whose number differ by 1 are: \_\_\_\_\_

- ☒ A. always contiguous
- ☒ B. may be contiguous
- ☒ C. always non-contiguous
- ☒ D. may be non-contiguous

**Answer Key:** A

Question 43 of 100

1.0 Points

A page frame size is: \_\_\_\_\_

- ☒ A. larger than the page size
- ☒ B. smaller than the page size
- ☒ C. equal to the page size
- ☒ D. none of the above

**Answer Key:** C

Question 44 of 100

1.0 Points

A virtual address contains: \_\_\_\_\_

- ☒ A. the physical page frame number as well as the offset
- ☒ B. the virtual page number as well as the offset
- ☒ C. the virtual page number as well as the physical page frame number

- ☒ ☐ D. the virtual page number as well as some protection bits

**Answer Key:** B

Question 45 of 100

1.0 Points

A 16 bit address space with 64 byte pages would use how many bits for virtual page numbers:

- ☒ ☐ A. 6 bits
- ☒ ☐ B. 10 bits
- ☒ ☐ C. 12 bits
- ☒ ☐ D. can't say from the information provided

**Answer Key:** B

Question 46 of 100

1.0 Points

A page table entry whose valid bit is = 0 means, this page is:

- ☒ ☐ A. in RAM
- ☒ ☐ B. on hard disk
- ☒ ☐ C. is never used by the process
- ☒ ☐ D. in RAM as well as on the hard disk

**Answer Key:** C

Question 47 of 100

1.0 Points

Paging solves the problem of:

- ☒ ☐ A. internal fragmentation
- ☒ ☐ B. external fragmentation
- ☒ ☐ C. internal as well as external fragmentation
- ☒ ☐ D. neither internal nor external fragmentation

**Answer Key:** B

## Question 48 of 100

1.0 Points

The index of a TLB represents: \_\_\_\_\_

- ☒ A. the physical page frame number
- ☒ B. the virtual page number
- ☒ C. the offset
- ☒ D. nothing

**Answer Key:** D

## Question 49 of 100

1.0 Points

A TLB entry contains: \_\_\_\_\_

- ☒ A. VPN
- ☒ B. PFN
- ☒ C. VPN and PFN
- ☒ D. VPN, PFN, and some other bits

**Answer Key:** D

## Question 50 of 100

1.0 Points

ASID bits identify: \_\_\_\_\_

- ☒ A. a memory page
- ☒ B. a user
- ☒ C. a process
- ☒ D. a processor

**Answer Key:** C

## Question 51 of 100

1.0 Points

Which order of buses in a computer system is from fastest to slowest: \_\_\_\_\_

- ☒ A. Peripheral I/O Bus > General I/O Bus > Memory Bus

- ✓ ☐ B. Memory Bus > Peripheral I/O Bus > General I/O Bus
- ✓ ☒ C. Memory Bus > General I/O Bus > Peripheral I/O Bus
- ✓ ☐ D. General I/O Bus > Peripheral I/O Bus > Memory Bus

**Answer Key:** C

Question 52 of 100

1.0 Points

Programmed I/O is performed by: \_\_\_\_\_

- ✓ ☐ A. CPU
- ✓ ☐ B. User
- ✓ ☐ C. DMA
- ✗ ☒ D. All of the above

**Answer Key:** A

Question 53 of 100

1.0 Points

The main advantage of DMA is: \_\_\_\_\_

- ✓ ☐ A. It is very fast in doing arithmetic
- ✓ ☐ B. It handles all interrupts
- ✓ ☒ C. It relieves the CPU of the burden of transferring data from one address to another.
- ✓ ☐ D. It is non volatile memory

**Answer Key:** C

Question 54 of 100

1.0 Points

Polling: \_\_\_\_\_

- ✗ ☒ A. does not consume CPU cycles
- ✓ ☐ B. consumes CPU cycles
- ✓ ☐ C. cannot read data from RAM
- ✓ ☐ D. none of the above



**Answer Key: B**

Question 55 of 100

1.0 Points

The alternative to polling is: \_\_\_\_\_

- ☒ A. Virtual Memory
- ☒ B. Round Robin Scheduling
- ☒ C. Locks
- ☒ D. Interrupts

**Answer Key: D**

Question 56 of 100

1.0 Points

In memory mapped I/O, to talk to a device, the processor: \_\_\_\_\_

- ☒ A. Reads from and Writes to address in its address space
- ☒ B. Reads from and Writes to ALU registers
- ☒ C. Reads from and Writes to the CPU pipeline
- ☒ D. Reads from and Writes to a text file

**Answer Key: A**

Question 57 of 100

1.0 Points

Device drivers are usually found in the: \_\_\_\_\_

- ☒ A. highest layers of the software stack
- ☒ B. lowest layers of the software stack
- ☒ C. middle layers of the software stack
- ☒ D. all of the above

**Answer Key: B**

Question 58 of 100

1.0 Points

\_\_\_\_\_ A write operation (writing all 1s to a sector containing all 0s) on a hard disk sector was in \_\_\_\_\_

operation when a power loss occurred. Which of the following statements cannot be true:

- ☒ ☐ A. The sector contents are all 0s
- ☒ ☐ B. The sector contents are all 1s
- ☒ ☐ C. The sector contents are both 1s and 0s
- ☒ ☐ D. One of the above statements is true

**Answer Key:** C

Question 59 of 100

1.0 Points

A hard disk platter has:

- ☒ ☐ A. one surface
- ☒ ☐ B. two surfaces
- ☒ ☐ C. four surfaces
- ☒ ☐ D. eight surfaces

**Answer Key:** B

Question 60 of 100

1.0 Points

Sectors on a hard disk platter are arranged in:

- ☒ ☐ A. Horizontal Rows
- ☒ ☐ B. Vertical Rows
- ☒ ☐ C. Concentric Circles
- ☒ ☐ D. None of the above

**Answer Key:** C

Question 61 of 100

1.0 Points

A hard disk spinning at 10000 RPMs will complete a rotation in:

- ☒ ☐ A. 1 second
- ☒ ☐ B. 10 milliseconds

- ☒ C. 2 milliseconds
- ☒ D. 6 milliseconds

**Answer Key:** D

Question 62 of 100

1.0 Points

The disk arms serves to move the head: \_\_\_\_\_

- ☒ A. across different tracks
- ☒ B. within the same track
- ☒ C. it does not serve to move the head
- ☒ D. from one platter to another

**Answer Key:** A

Question 63 of 100

1.0 Points

The seek operation involves: \_\_\_\_\_

- ☒ A. the rotation of the disk platter
- ☒ B. the movement of the disk arm
- ☒ C. the rotation of the disk platter as well as the movement of the arm
- ☒ D. neither the rotation of the disk platter nor the movement of the arm

**Answer Key:** B

Question 64 of 100

1.0 Points

A hard drive will attain its maximum transfer capacity under: \_\_\_\_\_

- ☒ A. random small sized reads
- ☒ B. sequential, i.e., large sized reads
- ☒ C. both random and sequential reads
- ☒ D. neither random nor sequential reads

**Answer Key:** B

## Question 65 of 100

1.0 Points

The main purpose of the SCAN, i.e. Elevator, algorithm is: \_\_\_\_\_

- ☒ ☐ A. to increase data transfer speeds
- ☒ ☐ B. to secure data in a safe place
- ☒ ☐ C. to scan the RAM
- ☒ ☐ D. to avoid starvation in hard disk I/O request scheduling

**Answer Key:** D

## Question 66 of 100

1.0 Points

SSTF (shortest-seek-time-first): \_\_\_\_\_

- ☒ ☐ A. does not take into account Seek time
- ☒ ☐ B. does not take into account Rotation time
- ☒ ☐ C. takes into account both Seek as well as Rotation time
- ☒ ☐ D. takes into account neither Seek nor Rotation time

**Answer Key:** B

## Question 67 of 100

1.0 Points

A track buffer is: \_\_\_\_\_

- ☒ ☐ A. the inner most track on a platter
- ☒ ☐ B. the outer most track on a platter
- ☒ ☐ C. a cache for a hard drive
- ☒ ☐ D. the name of buffer in CPU

**Answer Key:** C

## Question 68 of 100

1.0 Points

Two files cannot have the same: \_\_\_\_\_

- ☒ ☐ A. name

- ☒ B. path
- ☒ C. inode number
- ☒ D. size

**Answer Key:** C

Question 69 of 100

1.0 Points

The OS (or the file system) views the hard disk as divided into:

- ☒ A. blocks
- ☒ B. tracks
- ☒ C. sectors
- ☒ D. platters

**Answer Key:** A

Question 70 of 100

1.0 Points

The inode table contains:

- ☒ A. the data of the files
- ☒ B. the metadata about the files
- ☒ C. the content of the directories
- ☒ D. all of the above

**Answer Key:** B

Question 71 of 100

1.0 Points

Usually, on a hard drive:

- ☒ A. the number of blocks containing data is less than those containing inodes
- ☒ B. the number of blocks containing data is equal to those containing inodes
- ☒ C. the number of blocks containing data is greater than those containing inodes

- ☒ ☐ D. the number of blocks containing data has no relation to those containing inodes

**Answer Key:** C

Question 72 of 100

1.0 Points

The number of sectors (of 512 bytes each) on a 64KB hard disk would be:

- ☒ ☐ A. 64
- ☒ ☐ B. 128
- ☒ ☐ C. 1024
- ☒ ☐ D. 32

**Answer Key:** B

Question 73 of 100

1.0 Points

A 64KB hard disk contains 8 blocks. How many sectors (512 bytes each) would there be in a block:

- ☒ ☐ A. 4
- ☒ ☐ B. 8
- ☒ ☐ C. 16
- ☒ ☐ D. 32

**Answer Key:** C

Question 74 of 100

1.0 Points

Which of the following information cannot be found in an inode:

- ☒ ☐ A. time this file was created
- ☒ ☐ B. time this file was last modified
- ☒ ☐ C. time this file was last accessed
- ☒ ☐ D. time this file was deleted

**Answer Key: D**

## Question 75 of 100

1.0 Points

Assuming an inode block member (the one that stores pointers to data block) is 60 bytes, how many data blocks this file can use if it only uses direct pointers (assume size of a pointer to be 4 bytes)?

- ☒ A. 60
- ☒ B. 240
- ☒ C. 32
- ☒ D. 15

**Answer Key: D**

## Question 76 of 100

1.0 Points

Assuming an inode block member (the one that stores pointers to data block) is 60 bytes, how many data blocks this file can use if it use direct pointers and one indirect pointer (assume size of a pointer to be 4 bytes and that of a block to be 4KB)?

- ☒ A. 1024
- ☒ B. 14+1024
- ☒ C. 15\*1024
- ☒ D. 60+4K

**Answer Key: B**

## Question 77 of 100

1.0 Points

A file read operation would not: \_\_\_\_\_

- ☒ A. access the data blocks
- ☒ B. access the inode blocks
- ☒ C. access the bitmap for data blocks
- ☒ D. result in a seek operation

**Answer Key: C**

## Question 78 of 100

1.0 Points

Write buffering: \_\_\_\_\_

- ☒ ☐ A. improves file system performance and does not result in data loss
- ☒ ☐ B. degrades file system performance but does not result in data loss
- ☒ ☐ C. improves file system performance but may result in data loss
- ☒ ☐ D. degrades file system performance as well as results in data loss

**Answer Key:** C

## Question 79 of 100

1.0 Points

One way to improve file system performance is to: \_\_\_\_\_

- ☒ ☐ A. increase hard disk capacity
- ☒ ☐ B. decrease hard disk capacity
- ☒ ☐ C. use a part of RAM as cache for frequently used blocks
- ☒ ☐ D. all of the above

**Answer Key:** C

## Question 80 of 100

1.0 Points

A file create operation will modify the inode of a directory A if: \_\_\_\_\_

- ☒ ☐ A. if the file being created is in the root directory
- ☒ ☐ B. if the file being created is in parent directory of A
- ☒ ☐ C. if the file being created is in A
- ☒ ☐ D. if the file being created is in any of the sub-directories of A

**Answer Key:** C

## Question 81 of 100

1.0 Points

If threads are created in order A, B, C, then we can safely say that they will finish in order: \_\_\_\_\_

- ☒ ☐ A. A, B, C
- ☒ ☐ B. C, B, A



- ☒ ☐ C. C, A, B
- ☒ ☐ D. we do not know

**Answer Key:** D

Question 82 of 100

1.0 Points

Threads of a same process share: \_\_\_\_\_

- ☒ ☐ A. global variables
- ☒ ☐ B. address space
- ☒ ☐ C. heap
- ☒ ☐ D. all of the above

**Answer Key:** D

Question 83 of 100

1.0 Points

The causes of a race condition may include: \_\_\_\_\_

- ☒ ☐ A. sharing data between threads
- ☒ ☐ B. multiple threads running concurrently
- ☒ ☐ C. scheduling not being in our control
- ☒ ☐ D. all of the above

**Answer Key:** D

Question 84 of 100

1.0 Points

A critical section denotes: \_\_\_\_\_

- ☒ ☐ A. a part of code
- ☒ ☐ B. a memory location
- ☒ ☐ C. a part of hard disk
- ☒ ☐ D. none of the above

**Answer Key:** A

## Question 85 of 100

1.0 Points

Race conditions produce: \_\_\_\_\_

- ☒ ☐ A. deterministic behaviour
- ☒ ☐ B. indeterministic behaviour
- ☒ ☐ C. segmentation faults
- ☒ ☐ D. none of the above

**Answer Key:** B

## Question 86 of 100

1.0 Points

Which of the following is used for synchronization: \_\_\_\_\_

- ☒ ☐ A. Locks
- ☒ ☐ B. Condition Variables
- ☒ ☐ C. Semaphores
- ☒ ☐ D. All of the above

**Answer Key:** D

## Question 87 of 100

1.0 Points

Mutual exclusion is implemented to prevent: \_\_\_\_\_

- ☒ ☐ A. Race conditions
- ☒ ☐ B. Indeterministic behaviour
- ☒ ☐ C. Multiple threads updating the same memory location concurrently
- ☒ ☐ D. all of the above

**Answer Key:** D

## Question 88 of 100

1.0 Points

The function pthread\_create can be used for: \_\_\_\_\_

- ☒ ☐ A. creating a thread

- ☒ ☐ B. passing data to a thread
- ☒ ☐ C. getting the thread ID of the created thread
- ☒ ☐ D. all of the above

**Answer Key:** D

Question 89 of 100

1.0 Points

A mutex is another name for a: \_\_\_\_\_

- ☒ ☐ A. Lock
- ☒ ☐ B. Condition Variable
- ☒ ☐ C. Critical Section
- ☒ ☐ D. Context Switch

**Answer Key:** A

Question 90 of 100

1.0 Points

A semaphore can be used as: \_\_\_\_\_

- ☒ ☐ A. a lock
- ☒ ☐ B. a condition variable
- ☒ ☐ C. a lock as well as a condition variable
- ☒ ☐ D. neither a lock nor a condition variable

**Answer Key:** C

Question 91 of 100

1.0 Points

Which of the instruction we've studied to implement a lock: \_\_\_\_\_

- ☒ ☐ A. test-and-set
- ☒ ☐ B. compare-and-swap
- ☒ ☐ C. load-linked and store-conditional
- ☒ ☐ D. all of the above

**Answer Key:** D

Question 92 of 100

1.0 Points

The locks implemented via the fetch-and-add instruction have the added advantage that:

- ☒ ☐ A. they are faster
- ☒ ☐ B. they are more secure
- ☒ ☒ C. they prevent starvation
- ☒ ☐ D. all of the above

**Answer Key:** C

Question 93 of 100

1.0 Points

The inevitable result of making a process sleep when waiting for a lock is that:

- ☒ ☐ A. we have to use more locks
- ☒ ☒ B. we have to maintain a queue of sleeping processes for each lock
- ☒ ☐ C. we have to use interrupts for the purpose of waking the sleeping process
- ☒ ☐ D. all of the above

**Answer Key:** B

Question 94 of 100

1.0 Points

The following is true about the Producer/Consumer problem:

- ☒ ☐ A. The producer has to wait when the buffer is empty
- ☒ ☐ B. The consumer has to wait when the buffer is full
- ☒ ☐ C. The consumer can consume when the buffer is empty
- ☒ ☒ D. None of the above

**Answer Key:** D

Question 95 of 100

A semaphore initialized to the value of 1 will work as:

1.0 Points

- ☒ A. a lock
- ☐ B. a condition variable
- ☒ C. a counter
- ☒ D. a stack

**Answer Key:** A

Question 96 of 100

Which of the condition is necessary for a deadlock to occur?

1.0 Points

- ☒ A. mutual exclusion
- ☒ B. hold-and-wait
- ☐ C. no preemption
- ☒ D. all of the above

**Answer Key:** D

Question 97 of 100

One way to prevent deadlocks is to:

1.0 Points

- ☒ A. impose an ordering on the acquisition of locks
- ☒ B. not create more than 10 threads
- ☒ C. run our programs on a single core CPU
- ☒ D. all of the above

**Answer Key:** A

Question 98 of 100

It is impossible, under any conditions, for two threads in a single process to be in a deadlock.

1.0 Points

- ☒ A. true
- ☐ B. false

**Answer Key: B**

Question 99 of 100

1.0 Points

In reader-writer locks, multiple processes can: \_\_\_\_\_

- ✓ ☐ A. read from a memory location concurrently
- ✓ ☐ B. write to a memory location concurrently
- ✓ ☐ C. read from and write to a memory location concurrently
- ✓ ☐ D. all of the above

**Answer Key: A**

Question 100 of 100

1.0 Points

Dining philosophers problem is a problem about: \_\_\_\_\_

- ✓ ☐ A. food
- ✓ ☐ B. philosophy
- ✓ ☐ C. concurrency
- ✓ ☐ D. virtual memory

**Answer Key: C**

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