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Commencé le	Monday 30 October 2023, 09:45
État	Terminé
Terminé le	Monday 30 October 2023, 09:59
Temps mis	13 min 55 s
Note	**17,50** sur 20,00 (**87,5**%)

Question **1**

Correct

Note de 1,00 sur 1,00

Select the correct affirmations.

- ☐ a. Kernel can not be infected thanks to user / kernel separation
- ☐ b. As they are older and heavier, monolithic kernels tend to be slower than microkernels
- ☑ c. Ring 2 has more privileges than Ring 3 ✔
- ☐ d. User root has the same privileges as the kernel

Votre réponse est correcte.

La réponse correcte est :
Ring 2 has more privileges than Ring 3

Question **2**

Correct

Note de 1,00 sur 1,00

What happens if a hardware interrupt is emitted while a user process is active?

- ☐ a. The user process is asked by a signal to yield in favor of the kernel.
- ☐ b. The interrupt will be handled after the next timer interrupt.
- ☑ c. The user process is interrupted and the interrupt is handled in kernel space. ✔
- ☐ d. All other interrupts are masked to prevent another interrupt from interrupting this interrupt handler.

Votre réponse est correcte.

La réponse correcte est :
The user process is interrupted and the interrupt is handled in kernel space.

Question **3**

Non répondue

Noté sur 1,00

What of the following is true about paging?

- [ ]   a.   Page sizes are fixed and are equal to frame sizes.
- [ ]   b.   The memory needed to store the paging structures decreases for smaller page sizes.
- [ ]   c.   Paging may lead to external fragmentation.
- [ ]   d.   The memory needed to store the paging structures increases for smaller page sizes.
- [ ]   e.   Paging may lead to internal fragmentation.

Your answer is incorrect.

Les réponses correctes sont :
Paging may lead to internal fragmentation.,

Page sizes are fixed and are equal to frame sizes.,

The memory needed to store the paging structures increases for smaller page sizes.

Question **4**

Correct

Note de 1,00 sur 1,00

ELF is

- [ ]   a.   None of the other answers is correct
- [x]   b.   Specific to an OS ✔
- [ ]   c.   A format process
- [ ]   d.   A shared file
- [x]   e.   Part of the ABI ✔

Votre réponse est correcte.

Les réponses correctes sont :
Part of the ABI,

Specific to an OS

Question **5**

Correct

Note de 1,00 sur 1,00

What services does the kernel provide?

☑ a. Memory management ✔

☑ b. Memory allocation ✔

☑ c. Device drivers ✔

☑ d. System calls ✔

Votre réponse est correcte.

Les réponses correctes sont :
Device drivers,

Memory management,

Memory allocation,

System calls

Question **6**

Correct

Note de 1,00 sur 1,00

What type of interrupt or signal protects the system against processes that end up in an infinite loop?

☐ a. SIGKILL

☐ b. Software interrupt

☑ c. Timer interrupt ✔

☐ d. SIGTERM

Votre réponse est correcte.

La réponse correcte est :
Timer interrupt

Question **7**

Partiellement correct

Note de 0,50 sur 1,00

The TLB...

- ☐ a.   ...is a paging structure
- ☐ b.   ...is filled by your kernel
- ☐ c.   ...is completely flushed by writing to CR3
- ☑ d.   ...is a CPU cache ✔
- ☐ e.   ...is completely flushed on write memory access
- ☐ f.   ...is never flushed

Your answer is partially correct.

Vous en avez sélectionné correctement 1.
Les réponses correctes sont :
...is a CPU cache,
...is completely flushed by writing to CR3

Question **8**

Correct

Note de 1,00 sur 1,00

Which of the following events results in a software interrupt?

- ☐ a.   An I/O event
- ☑ b.   An access to a nonexistent memory page ✔
- ☑ c.   A division by zero ✔
- ☐ d.   Data that is moved from memory to L1 cache

Votre réponse est correcte.

Les réponses correctes sont : A division by zero,
An access to a nonexistent memory page

Question **9**

Correct

Note de 1,00 sur 1,00

If a program's name is "hello_world.exe", it will

- [ ] a. Run on both
- [x] b. We can not know ✔
- [ ] c. Run on Linux
- [ ] d. Run on Windows

Votre réponse est correcte.

La réponse correcte est :
We can not know

Question **10**

Incorrect

Note de 0,00 sur 1,00

What of the following is true about virtual addresses?

- [ ] a. It is expensive to translate a virtual address to a physical address
- [x] b. It is cheap to translate a virtual address to a physical address ✘
- [ ] c. Are used to go through paging structures by the MMU
- [x] d. They are a physical address with an offset added ✘
- [ ] e. Is always valid

Your answer is incorrect.

Les réponses correctes sont :
Are used to go through paging structures by the MMU,

It is expensive to translate a virtual address to a physical address

Question **11**

Correct

Note de 1,00 sur 1,00

Your process can ask the kernel for more memory than physically available.

Veuillez choisir une réponse.

- ◉ Vrai ✔
- ○ Faux

La réponse correcte est « Vrai ».

Question **12**

Correct

Note de 1,00 sur 1,00

An error inside the kernel will cause a system failure

- ☑ a.   It depends on the kernel type ✔
- ☑ b.   It depends on the error ✔
- ☐ c.   No, it only crashes the related process
- ☐ d.   Yes, always

Votre réponse est correcte.

Les réponses correctes sont :
It depends on the error,

It depends on the kernel type

Question **13**

Correct

Note de 1,00 sur 1,00

The kernel is a process that is always running. Another process can run...

- ☑ a.   concurrently to the kernel even on the same CPU/core because the CPU constantly switches between kernel and user   ✔
         mode
- ☐ b.   only if the computer has at least two CPUs or cores
- ☐ c.   in parallel to the kernel even on the same CPU/core

Votre réponse est correcte.

La réponse correcte est :
concurrently to the kernel even on the same CPU/core because the CPU constantly switches between kernel and user mode

Question **14**

Correct

Note de 1,00 sur 1,00

Select the correct affirmations.

☐ a.   System calls can not fail as they are run with kernel privileges

☐ b.   Kernel processes use system calls to interact with userland

☑ c.   System calls are endpoints of the kernel API ✔

☑ d.   System calls differ depending on the kernel ✔

Votre réponse est correcte.

Les réponses correctes sont :
System calls are endpoints of the kernel API,

System calls differ depending on the kernel

Question **15**

Correct

Note de 1,00 sur 1,00

Which one of those does describe the structure of a monolithic kernel?

☐ a.   User and kernel services run in different memory spaces. Only essential services such as memory management, multitasking and IPC (InterProcess Communication) are provided by the kernel and other services like networking run as servers in user space programs.

☐ b.   Kernel services run in user space but with different privileges than user processes to access hardware directly from user land.

☐ c.   None of those, all kernel have the same structure but the way blocks interact is different.

☑ d.   Kernel services and drivers are all part of the kernel, and run in kernel mode. User and kernel spaces share the same   ✔
memory area, but with different access rights.

Votre réponse est correcte.

La réponse correcte est :
Kernel services and drivers are all part of the kernel, and run in kernel mode. User and kernel spaces share the same memory area, but with different access rights.

Question **16**

Correct

Note de 1,00 sur 1,00

When I press a key on the keyboard, it triggers

- ☑ a.   A hardware interrupt ✔
- ☐ b.   A signal
- ☐ c.   A software interrupt

Votre réponse est correcte.

La réponse correcte est :
A hardware interrupt

Question **17**

Correct

Note de 1,00 sur 1,00

How does your CPU notifies the kernel about faults and events?

- ☐ a.   Signals
- ☑ b.   Interrupts ✔
- ☐ c.   None of those

Your answer is correct.

La réponse correcte est :
Interrupts

Question **18**

Correct

Note de 1,00 sur 1,00

When do I check the ABI?

- ☐ a.   To check how to use a specific system call
- ☐ b.   To check how to use a function
- ☑ c.   For calling conventions ✔

Votre réponse est correcte.

La réponse correcte est :
For calling conventions

Question **19**

Correct

Note de 1,00 sur 1,00

Select the correct affirmations.

☑ a.   None of the other answers are correct ✔

☐ b.   Sections headers are useful to create a process from a program

☐ c.   You can always execute an ELF

☐ d.   There are several ELF headers to describe each section

Votre réponse est correcte.

La réponse correcte est :
None of the other answers are correct

Question **20**

Correct

Note de 1,00 sur 1,00

The Program Header in an ELF file points to...

☐ a.   None of the other answers is correct.

☐ b.   An ELF Section

☑ c.   An ELF Segment ✔

☐ d.   Possibly both -- ELF Section and Segment

Votre réponse est correcte.

La réponse correcte est :
An ELF Segment

Aller à…

SYS1_18.12.2023 ►