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État	Terminé
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Temps mis	18 min 50 s
Points	6,67/10,00
Note	**5,33** sur 8,00 (**67**%)

Question **1**

Correct

Note de 1,00 sur 1,00

What is OpenMP?

Veuillez choisir une réponse :

- a. A mathematical library.
- b. A new language dedicated to HPC.
- c. A compiler.
- d. A programming interface standard to create parallel applications. ✔

Votre réponse est correcte.

La réponse correcte est : A programming interface standard to create parallel applications.

Question **2**

Incorrect

Note de 0,00 sur 1,00

What is the difference between "#pragma omp parallel" and "#pragma omp parallel for"?

Veuillez choisir une réponse :

- a. The first one creates threads, while the second creates for.
- b. The first one creates threads, while the second creates threads, but, wait, there is no difference. ✖
- c. "omp parallel for" is equivalent to "omp parallel" followed by "omp for".

Votre réponse est incorrecte.

La réponse correcte est : "omp parallel for" is equivalent to "omp parallel" followed by "omp for".

Question **3**

Correct

Note de 1,00 sur 1,00

the "pragma omp for" will split the following "for" loop among the threads. It will do a static schedule (it will split equally the loop). What should be added to have dynamic schedule of chunks of 3 items?

Veuillez choisir une réponse :

- a. schedule_dynamic chunk(3)
- b. schedule(dynamic,3) ✔
- c. dynamic(schedule) chunk(3)
- d. schedule(dynamic) chunk(3)

Votre réponse est correcte.

La réponse correcte est : schedule(dynamic,3)

Question **4**

Correct

Note de 1,00 sur 1,00

By default, the "pragma omp parallel" creates as many threads as they are cores. This can be changed by setting the environment variable "OMP_NUM_THREADS". But this can also be changed directly in the pragma. What to add to create a parallel region of 3 threads?

#pragma omp parallel ...

Veuillez choisir une réponse :

- a. num_threads(6)
- b. number_of_threads(3)
- c. num_threads(3) ✔
- d. thread_num(3)
- e. nb_threads(3)

Votre réponse est correcte.

La réponse correcte est : num_threads(3)

Question **5**

Correct

Note de 1,00 sur 1,00

Among the answers, which looks as a valid, but highly simplified, "barrier" implementation?

Veuillez choisir une réponse :

a.
```
function barrier()
   cpt += 1
   while( cpt != omp_get_num_threads());

end
```

b.
```
function barrier()
   #pragma omp critical(barrier)

   cpt += 1
   while( cpt != omp_get_num_threads());

end ✔
```

c.
```
function barrier()
cpt += 1
while( cpt == 0);

end
```

d.
```
function barrier()
cpt += 1
while( cpt == omp_get_num_threads());

end
```

e.
```
function barrier()
#pragma omp critical(barrier)

cpt += 1
while( cpt == omp_get_num_threads());

end
```

Votre réponse est correcte.

La réponse correcte est :

```
function barrier()
   #pragma omp critical(barrier)

   cpt += 1
   while( cpt != omp_get_num_threads());

end
```

Question **6**

Correct

Note de 1,00 sur 1,00

What is a task?

Veuillez choisir une réponse :

- a. A function.
- b. A code section that can be executed by any thread. ✔
- c. A mechanism to synchronize threads.
- d. A thread.

Votre réponse est correcte.

La réponse correcte est : A code section that can be executed by any thread.

Question **7**

Partiellement correct

Note de 0,67 sur 1,00

Select all the statements that are valid about tasks.

Veuillez choisir au moins une réponse :

- a. Using tasks there is no global synchronization.
- b. Using tasks is not appropriate when the workload is not regular.
- c. Using tasks is more flexible than traditional fork-join. ✔
- d. Using tasks allows to really express the parallelism in an algorithm. ✔

Votre réponse est partiellement correcte.

Vous en avez sélectionné correctement 2.
Les réponses correctes sont : Using tasks there is no global synchronization., Using tasks is more flexible than traditional fork-join., Using tasks allows to really express the parallelism in an algorithm.

Question **8**

Correct

Note de 1,00 sur 1,00

Consider the following code statement:

```
==================================
#pragma omp task depend(in:a,b)
fun(a,b) // Task A
#pragma omp task depend(in:a,b)
fun(a,b) // Task B
#pragma omp task depend(in:a) depend(out:b)
fun(a,b) // Task C
#pragma omp task depend(out:a,b)
fun(a,b) // Task D
==================================
```

What are the obtained dependencies?

Veuillez choisir une réponse :

a. A -> B

B -> C
A -> D
B -> C

C -> D

b. A -> C
B -> C
C -> D

c. A -> C
B -> C
A -> D
B -> D
C -> D ✔

d. A -> B

B -> C
C -> D

Votre réponse est correcte.

La réponse correcte est : A -> C
B -> C
A -> D
B -> D
C -> D

Question **9**

Incorrect

Note de 0,00 sur 1,00

Consider the following code:

```
==========================
int j;
#pragma omp parallel
{
   // code that uses j
}
==========================
```

If the threads read "j" there is no problem.
But if at least one of the thread write "j" and keep the values in its local register, the global memory will not be updated, and the other threads will not have the new value.

Among the following solutions, select the ones that are correct:

Veuillez choisir au moins une réponse :

- [x] a. When a thread reads "j" it should use a barrier ✖
- [ ] b. When a thread changes "j" it should use printf
- [x] c. When a thread changes/reads "j" it should use a mutex ✔
- [ ] d. "j" should be declared "atomic int j"
- [ ] e. "j" should be declated "restrict int j"

Votre réponse est incorrecte.

Les réponses correctes sont : "j" should be declared "atomic int j", When a thread changes/reads "j" it should use a mutex

Question **10**

Incorrect

Note de 0,00 sur 1,00

What means multi/many-core?

Veuillez choisir une réponse :

- ( ) a. That a computer is multi-task
- ( ) b. That a CPU has several cores
- (•) c. That a CPU is connected with other CPUs ✖

Votre réponse est incorrecte.

La réponse correcte est : That a CPU has several cores

subject ▶