Quiz 03

Due Apr 22 at 11:59pm **Points** 10 **Questions** 10
Available Apr 20 at 12pm - Apr 22 at 11:59pm 2 days **Time Limit** 60 Minutes

Attempt History

	Attempt	Time	Score
LATEST	Attempt 1	7 minutes	10 out of 10

Correct answers will be available on Apr 23 at 12:01am.

Score for this quiz: **10** out of 10
Submitted Apr 20 at 5pm
This attempt took 7 minutes.

Question 1 — 1 / 1 pts

Why does "Moore's Law of Clock Speed" no longer hold?

- (•) It would result in way too much power consumption and heat dissipation
- ( ) Because connection lines on CPU chips can no longer be made that thin
- ( ) Because CPU clocks can no longer be made to run that fast
- ( ) Because Moore's Law of Transistor Density no longer holds either

Question 2 — 1 / 1 pts

The reason the red-black pattern is necessary for the **Bubble Sort** example is:

You don't want to simultaneously be reading and writing the same value from multiple threads

It prevents False Sharing

It isn't truly necessary, but it is good practice

It speeds up the algorithm

Question 3

1 / 1 pts

When using OpenMP Tasks to apply parallelism to traversing a binary tree, the uniformity of the distribution of tasks among the threads:

Depends on the compiler

Depends on the amount of physical memory you have

Depends on how well you use the OpenMP task clauses

Depends on the type of CPU

Question 4

1 / 1 pts

The difference between L1 and L2 cache is

L2 has two banks of memory, L1 only has one

L1 is larger and slower than L2

Nothing -- they are two terms for the same thing

L1 is smaller and faster than L2

Question 5

1 / 1 pts

Why is there a photo of a carton of eggs in the Cache notes?

Andy Warhol would have appreciated it this way

Bringing home a dozen eggs when you only need 2 today is like the need for cache

Because caches are easily broken

No logical reason -- it looks cool

Question 6

1 / 1 pts

Caches are at their very best when your code takes advantage of

Singular and Temporal coherency

Spatial and Temporary coherency

Singular and Temporary coherency

Spatial and Temporal coherency

Question 7

1 / 1 pts

When adding up the elements of a 2D array in C or C++, it is faster to add the elements:

- ○ Vetically (i.e., down the columns) first
- ○ It makes no speed difference either way
- ◉ Horizontally (i.e., across the rows) first

Question 8

1 / 1 pts

In terms of 32-bit floating-point numbers, the size of a cache line is typically:

- ○ 64 floating-point numbers
- ◉ 16 floating-point numbers
- ○ 32 floating-point numbers
- ○ 8 floating-point numbers

Question 9

1 / 1 pts

MESI stands for

- ○ Multicore-Exclusive-Shared-Invalid
- ○ Modified-Exterior-Shared-Invalid

- Modified-Exclusive-Shared-Invalid
- Modified-Exclusive-Shared-Instructions
- Nothing, it is someone's name
- Modified-Exclusive-Single-Invalid

Question 10

1 / 1 pts

False Sharing happens because

- More than two threads are trying to read from the same cache line
- Two threads are reading from the same cache line
- Two threads are not sharing the same cache line, but should be
- One thread is accessing the same cache line that another thread is writing to

Quiz Score: **10** out of 10