**MULTIPLE CHOICE**

1. A taxonomy first introduced by \_\_\_\_\_\_\_ is still the most common way of categorizing systems with parallel processing capability.

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1. Uniprocessors fall into the \_\_\_\_\_\_\_ category of computer systems.

A. MIMD B. SIMD

C. SISD D. MISD

1. Vector and array processors fall into the \_\_\_\_\_\_\_\_ category of computer systems.

A. SIMD B. SISD

C. MISD D. MIMD

1. SMPs, clusters, and NUMA systems fit into the \_\_\_\_\_\_\_\_ category of computer systems.

A. SISD B. MIMD

C. SIMD D. MISD

1. A \_\_\_\_\_\_\_\_\_ problem arises when multiple copies of the same data can exist in different caches simultaneously, and if processors are allowed to update their own copies freely, an inconsistent view of memory can result.

A. cache coherence B. cluster

C. failover D. failback

1. Hardware-based solutions are generally referred to as cache coherence \_\_\_\_\_\_\_.

A. clusters B. streams

C. protocols D. vectors

1. A \_\_\_\_\_\_\_\_\_\_ is an instance of a program running on a computer.

A. process B. process switch

C. thread D. thread switch

1. A \_\_\_\_\_\_\_\_ is a dispatchable unit of work within a process that includes a processor context and its own data area for a stack.

A. process B. process switch

C. thread D. thread switch

1. Replicating the entire processor on a single chip with each processor handling separate threads is \_\_\_\_\_\_\_\_\_.

A. interleaved multithreading B. blocked multithreading

C. simultaneous multithreading D. chip multiprocessing

1. With no multithreading, \_\_\_\_\_\_\_\_\_ is the simple pipeline found in traditional RISC and CISC machines.

A. superscalar

B. single-threaded scalar

C. blocked multithreaded scalar

D. interleaved multithreaded scalar

11. \_\_\_\_\_\_\_\_\_ causes results issuing from one functional unit to be fed immediately into another functional unit and so on.

 A. Chaining B. Rollover

 C. Passive standby D. Pipelining

12. \_\_\_\_\_\_\_\_ provides service to customers in the form of software, specifically application software, running on and accessible in the cloud.

 A. PaaS B. CaaS

 C. SaaS D. IaaS

13. Which of the following is an essential characteristic of cloud computing?

 A. rapid elasticity B. measured service

 C. broad network access D. all of the above

14. An operation that switches the processor from one process to another by saving all the process control data, register, and other information for the first and replacing them with the process information for the second is:

 A. resource ownership switch B. process switch

 C. thread switch D. cluster switch

15. With \_\_\_\_\_\_\_\_ instructions are simultaneously issued from multiple threads to the execution units of a superscalar processor.

 A. SMT B. single-threaded scalar

 C. coarse-grained multithreading D. chip multiprocessing

**SHORT ANSWER**

1. Computer systems that fall into the \_\_\_\_\_\_\_\_\_\_ category have a single processor that executes a single instruction stream to operate on data stored in a single memory.
2. Computer systems that fall into the \_\_\_\_\_\_\_\_\_ category have a single machine instruction that controls the simultaneous execution of a number of processing elements on a lockstep basis.
3. Computer systems that fall into the \_\_\_\_\_\_\_\_\_\_ category have a sequence of data that is transmitted to a set of processors, each of which executes a different instruction sequence.
4. Computer systems that fall into the \_\_\_\_\_\_\_\_ category have a set of processors that simultaneously execute different instruction sequences on different data sets.
5. A \_\_\_\_\_\_\_\_ is a group of interconnected, whole computers working together as a unified computing resource that can create the illusion of being one machine.
6. The \_\_\_\_\_\_\_\_\_\_ is the simplest mechanism for constructing a multiprocessor system.
7. \_\_\_\_\_\_ protocols distribute the responsibility for maintaining cache coherence among all of the cache controllers in a multiprocessor.
8. The four states of the MESI protocol are: modified, shared, invalid, and \_\_\_\_\_\_.
9. An approach that allows for a high degree of instruction-level parallelism without increasing circuit complexity or power consumption is called \_\_\_\_\_\_\_\_.
10. Two key characteristics of a process are: scheduling/execution and \_\_\_\_\_\_\_\_.
11. The four principal approaches to multithreading are: interleaved (fine-grained), blocked (coarse-grained), simultaneous, and \_\_\_\_\_\_\_\_.
12. \_\_\_\_\_\_\_\_\_ is the easiest multithreading approach to implement.
13. Widely used in data centers to save space and improve system management, a \_\_\_\_\_\_\_\_\_ is a server architecture that houses multiple server modules in a single chassis.
14. An approach where all processors have access to all parts of main memory using loads and stores, with the memory access time of a processor differing depending on which region of main memory is accessed, is \_\_\_\_\_\_\_\_\_.
15. The four deployment models defined by NIST are: public cloud, private cloud, community cloud, and \_\_\_\_\_\_\_\_\_\_ cloud.