**Blue Waters Petascale Semester Curriculum v1.0**

**Unit 9: Optimization**

**Lesson 3: Cache Memory Efficiency**

**Sample Assessment**

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*Browse and search the full curriculum at*[*http://shodor.org/petascale/materials/semester-curriculum*](http://shodor.org/petascale/materials/semester-curriculum)

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*We want to hear from you! Please let us know your experiences using this material by sending email to* [*petascale@shodor.org*](mailto:petascale@shodor.org)

1. What technology makes accessing the cache faster than accessing the main memory?
2. What are the two principles the cache utilizes?
3. Why is the cache much smaller than main memory?
4. What happens when the cache is full and another memory word must be accessed?
5. What happens when a memory word presently stored in cache is changed by the program?