41 Lecture - CS501

Important Mcqs

| 1. | What is the hit rate of a cache with 2000 cache lines, where 1500 references were made and 300 misses occurred? a. 85% b. 80% c. 75% d. 70% Answer: a |
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| | What is the miss rate of a cache with 512 cache lines, where 1000 references were made and 50 misses occurred? |
| | b. 10% c. 15% d. 20% |
| | Answer: a |
| | If a cache access takes 5 ns and a DRAM access takes 50 ns, and the hit rate of the cache is 90%, what is the average memory access time? a. 5.5 ns b. 6.5 ns c. 7.5 ns d. 8.5 ns Answer: b |
| | A program has a total of 10,000 memory references, of which 1000 are cache misses. |
| | What is the hit rate of the cache? a. 90% |
| | b. 85% |
| | c. 80% d. 75% |
| | Answer: a |
| | A cache has 512 lines, each of which can hold 32 bytes. How many bits are required to address a byte in this cache? a. 7 bits b. 8 bits c. 9 bits |
| | d. 10 bits Answer: c |

If a cache has a hit rate of 95%, what is the miss rate?

a. 5%b. 10%

c. 15% d. 20% <mark>Answer: a</mark>

If a cache has a hit rate of 80% and an access time of 5 ns, and a DRAM has an access time of 50 ns, what is the average memory access time?

- a. 9 ns
- b. 10 ns
- c. 11 ns
- d. 12 ns

Answer: c

A cache has a hit rate of 90% and an access time of 5 ns. What is the effective access time if the cache is split into two levels, where the L1 cache has a hit rate of 95% and an access time of 2 ns, and the L2 cache has a hit rate of 80% and an access time of 10 ns?

- a. 4.1 ns
- b. 4.5 ns
- c. 5.0 ns
- d. 5.5 ns

Answer: b

A cache has 256 lines, each of which can hold 64 bytes. What is the total capacity of the cache in bytes?

- a. 16384 bytes
- b. 32768 bytes
- c. 65536 bytes
- d. 131072 bytes

Answer: b

If a cache has a hit rate of 80% and an access time of 5 ns, and a DRAM has an access time of 50 ns, what is the speedup achieved by the cache?

- a. 4x
- b. 5x
- c. 6x
- d. 7x

Answer: c