

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

What is the miss rate of a cache with 512 cache lines, where 1000 references were made and 50 misses occurred?

- a. 5%
- 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%

Answer: a

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