## COLLEGE OF Engineering – department of computer science

Quiz 2

Name:\_\_\_\_\_\_\_\_\_\_\_\_

**Exercise 1:**

a) Asssume a direct-mapped cache. Draw a cache of 2 blocks, a main memory of 6 blocks and a possible mapping using arrows.

b) Name one advantage of full associative caches over direct mapped caches.

c) Compare the size of the main memory block and the cache block.

d) Describe very briefly two replacement policies used in caches.

e) Show the format of a main memory address as seen by a k-way set associative cache explaining what is each field used for. What does k stand for?

**Exercise 2:**

Assume a directed-mapped cache of 4 blocks and a main memory of 16 blocks.

Each block is 4 bytes.

a) How many bytes is the main memory? Justify.

b) Show the format of the main memory address as seen by the cache mentioning how many bits is each field.

c) To which cache block the address 0x FF map? To which byte in the block the address 0x FF map? Justify.