Quiz (Lecture 2) Your name:

Q1: Indicate if each of the following statements is true (T) or false (F) (2.5 points):

Accessing a fully associative cache is faster than a direct mapped cache of the same size	T	F
The number of blocks in a direct mapped cache should be a power of 2	T	F
The number of bytes in a cache block should be a power of 2	T	F
In the write through policy, data in memory is always consistent with data in cache	T	F
The dirty bit is set when a block is read for the first time in the cache	T	F

Q2: Complete the following sentences (4 points):

Assuming a 32-word, direct mapped, cache with block size = 1 word:

Memory word address 36 is cached in index 4 (in decimal) and its tag is 1 (in decimal)

Memory word address 001101010 is cached in index 01010 (in binary) and its tag is 0011 (in binary)

Assuming a 32-word, direct mapped, cache with block size = 4 word:

Memory word address 36 is cached in block index 1 (in decimal) and its tag is 1 (in decimal) Memory word address 001101010 is cached in block index 010 (binary) and its tag is 0011 (binary)

Q3: In a 32-bits architecture where a byte address is given by 32 bits b31, b30, ... , b1, b0, identify the bits that are used for the tag if the cache size is 2Kbyte and the cache block size = 4 words (16 bytes) (1.5 points).

The tag bits are: b31 , b30 … , b12 , b11