Memory Module Assignment 1

1. Consider a direct mapped cache of 64 blocks. Block size is 16 bytes. What block number of cache will the byte address 1200 of main memory get?
2. Size of cache blocks is 16 bytes. Total blocks in cache are 128. A 4-way set associative system is used. Which block of cache is 1200 word of main memory placed?
3. Given the following determine the size of the sub-fields (in bits) in the address for direct mapping, fully-associative mapping and set-associative mapping cache schemes:
   * Main memory=256 MB
   * Cache memory= 1MB
   * Address space of the processor 256MB (Note : this gives the address size )
   * Block size is 128 bytes
   * Cache set size is 8 blocks.
4. Given main memory = 64K x 16

Cache memory = 1K words

Block Size is 4 words and direct mapping scheme is used.

* + 1. How many bits are there in tag, index-block and word field of address format?
    2. How many bits are there in each word of cache?
    3. How many blocks can the cache accommodate?