**CSCI 4335**

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**Problem 1:**

Given a RAM size of 512KB with a block size of 128 bytes each, and a cache size of 8KB, 4-way set associate cache. Calculate Tag, Index (**Sets** of lines) and offset.

**Problem 2:**

Given a RAM size of 64MB, and a 2-way associative 8KB cache with 16 byte block size, calculate Tag, Set and Offset

**Problem 3:**

Given RAM of 128KB and fully associative cache of 16KB with a block size of 256 bytes, find the Tag and the Offset.

Problem 4

Memory for this problem is small so that it could be written out in binary. Consider a machine with a byte addressable main memory of 64KB s and block size of 8 bytes. Assume that a direct mapped cache consisting of 32 lines is used with this machine. How is a 16-bit memory address divided into tag, line number, and byte number? Into what line would bytes with each of the following addresses be stored? A. 0001 0001 0001 1011 B. 1100 0011 0011 0100

A.

|  |  |  |
| --- | --- | --- |
| **Tag value** | **Line No.** | **Offset value** |
|  |  |  |
|  |  |  |

B.

|  |  |  |
| --- | --- | --- |
| **Tag value** | **Line No.** | **Offset value** |
|  |  |  |
|  |  |  |