Set Associative Caches

Index (implicit)	Tag	Valid	Data
0			
1			
…			
n			

Indices represent sets of associative cache blocks, which use a replacement strategy when the bucket is full.

Problems

1. How big should the T, I, and O fields of a memory address be on a system with…?

   Answers given as T/I/O

   a. 32-bit addressed memory, 64 KB fully associative cache, 4-byte blocks

      30/0/2

   b. 32-bit addressed memory, 64 KB fully associative cache, 16-byte blocks

      28/0/4

   c. 8-bit addressed memory, 32 B 2-way set associative cache, 4-byte blocks

      4/2/2

   d. 8-bit addressed memory, 32 B 4-way set associative cache, 4-byte blocks

      5/1/2

Practice Question (From Su 98, Question 4)

See HKN website for solutions