

## Chapter 5 Memory Exam

1

1 point

Answer the following question about this cache configuration

<b>Tag</b> is 7 bits how many different tags will there be?	<input type="text"/>
<b>Index</b> is 18 bits how many different <b>cache</b> blocks are there?	<input type="text"/>
How many bits wide will the <b>offset</b> be?	<input type="text"/>
Given the above information how big is the <b>block size</b> (in <b>BITS</b> )?	<input type="text"/>

2

1 point

The memory address is 8632ACF5	
Given: Cache <b>Block size</b> (in bytes) is	8192
The Block Offset width (in bits) is	<input type="text"/>
Given: The TAG width (in bits) is	11
What is the <b>Cache Index</b> size in bits	<input type="text"/>
How many Blocks are there in Cache	<input type="text"/>
What is the TAG for this instruction?	<input type="text"/>
What is the INDEX for this instruction?	<input type="text"/>
What is the byte offset of the block	<input type="text"/>

3

1 point

Given: The **cache** contains 4096 blocks  
Each **block** holds 4096 bytes

What is the size (in bits) of the **Tag**

Given this memory address.  
01111000001101011100101011001011

What is the tag

What is the Index

What is the Offset

What is the address in hex (all CAPS)

How many bits is the **Offset**?

How many bits are needed for the **Cache Index**?

4

1 point

Given the following information:

There are 64 possible tags

There are 2024 Cache blocks

How many bits for the Tag?	<input type="text"/>
How many bits are needed to reference a Cache block?	<input type="text"/>
How many bits wide is the Offset?	<input type="text"/>
How many bytes in the block	<input type="text"/>

5

1 point

PC	Tag	Index	Address (Jersey #)	Value
0	Bulls	100	28	Obi Enechionya
1	Heat	011	35	Aric Holman
2	Magic	111	15	Sindarius Thornwell
3	Hawks	010	10	Jeremiah Martin
4	Jazz	011	11	Mike Conley
5	Magic	111	15	Rodney Purvis
6	76ers	001	65	John Petrucelli
7	Magic	000	40	Braian Angola-Rodas
8	Mavericks	111	23	Alessandro Pajola

9	76ers	101	13	R.J. Hampton
10	Mavericks	100	20	Rashad Vaughn
11	Heat	000	0	Yante Maten
12	Jazz	011	19	Xavier Sneed
13	Hawks	000	32	Reid Travis
14	Heat	010	18	DeAndre Liggins
15	Magic	111	15	Sindarius Thornwell
16	Celtics	011	43	Javonte Green
17	Bulls	010	34	Justin Lewis

What will be the state of the cache after Fetching this 18 memory locations?

Tag	Index	Jersey #	State <u>Hit</u> or <u>Miss</u>
	000		
	001		
	010		
	011		
	100		
	101		
	110		
	111		

6

1 point

Given a cache with 1024 blocks. How many bits are needed for the Cache	10
Given each block is 256 bytes. How many bits are needed for the offset in the block?	8
What is the Tag size in bits	<input type="text"/>
What is the DATA size of one block in <b>bits</b> ?	<input type="text"/>
How many total <b>bits</b> are needed for one block?	<input type="text"/>
For the full cache, how many bits are needed? (no commas)	<input type="text"/>