CSCI2121 Assignment #8

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#1.

Tc = 2ns, Tm = 40ns, h = 0.98, therefore Ta = h\*Tm + (1-h)\*Tc = (.98)(40)+(.02)(2) = 39.2+0.04 = **39.24ns**

39.24ns = (.94)Tm+(.06)(1ns) 🡪 39.24ns - 0.06ns = .94Tm 🡪 39.18ns/.94 = Tm 🡪 Tm­ = **41.681ns**

#2.

MM = 213 words = 29 blocks 🡪 M = 9

CM = 27 blocks 🡪 N = 7

Sets = 27/24 = 23 🡪 S = 3

Full Associative cache tag size:  **M = 9**

Direct Mapped cache tag size:  **M – N = 2**

Set Associative cache tag size:  **M – S = 6**

#3. The 20bit address format must be [8bits|8bits|4bits] because you need 8 bits for 28 blocks and 4 bits for 24 words, and that leaves 8 bits for tag size.

a) Tag content: (1A)16 Block address: (2B)16

b) Tag content: (FF)16 Block address: (FF)16

c) Tag content: (12)16 Block address: (34)16

d) Tag content: (C1)16 Block address: (09)16