Quiz (Lecture 1)

Your name:

Q1: For each of the following statements, circle the correct choice (or choices if more than one choice applies) (2.5 points)

Cell are volatile in: DRAM SRAM Flash Disks
Read operations are destructive in: DRAM SRAM Flash Disks
The unit of data access on disks is: byte word sector track
Multiple word blocks take advantage of spatial locality temporal locality
A memory rank is composed of multiple Dims channels chips

Q2: complete the following sentences (2 points):

A 2Kbyte memory bank should be organized as 128 rows and 16 columns of bytes
The address of a byte in the 2Kbyte bank described above consists of 11 bits, with 7 bits used for row address and 4 bits used for column address

Q3: Assuming a 16-bytes memory composed of 2 banks, each with 4 rows of 2 bytes each (1 + 1 + 1.5 points).

a) Show on the figure below a bank major then row major ordering of the 16 bytes

b) Show on the figure below a bank major then column major ordering of the 16 bytes

c) Assuming that b3 b2 b1 b0 is the 4-bit address of a byte in the memory, which bit(s) is/are used for bank address, row address and column address in the “bank major then row major” ordering?

i. Bank address uses bit(s) b3
ii. Row address uses bit(s) b2 b1
iii. Column address uses bit(s) b0