What are the differences between ROM and RAM?

2–11 Compare and contrast DRAM and SRAM.

2–12 Why do DRAMs need to be refreshed?

2–13 What is the difference between volatile and nonvolatile memories?

2–14 Can you think of a reason why ROMs tend to be nonvolatile and RAMs volatile?

2–15 Consider the Pentium processor with an 800-MHz front-side bus. What is the bandwidth of this bus?

2–16 We stated that DDR SDRAMs and RDRAMs compete for the high-end systems that require higher bandwidth to support 533-MHz FSB. Suppose we use a four-channel RDRAM memory subsystem. What is the clock frequency that this subsystem should operate in order to meet the bandwidth requirement of the last question?

2–17 Discuss why I/O controllers are used to interface I/O devices to the system.

2–18 For each address below, state whether a 32-bit value stored at that address is aligned or not (all numbers are in hex): (a) 12345678 (c) 9128ADCC (b) ABCD755A (d) 38B0F050 2–19 Repeat the above exercise for 64-bit values