

Name: \_\_\_\_\_

Directions: **Work only on this sheet** (on both sides, if needed); do not turn in any supplementary sheets of paper. There is actually plenty of room for your answers, as long as you organize yourself BEFORE starting writing.

1. (15) A scheme under which an I/O device communicates with memory without the intervention of the CPU is called \_\_\_\_\_.

2. (15) Consider the example in Section 6.11. Fill in the blanks: By using a macro instead of a subroutine, we made the program \_\_\_\_\_ by the amount of \_\_\_\_\_ bytes, and we made its run time \_\_\_\_\_. (The first blank must be filled in by *larger* or *smaller*, the second by a number, and the third by *faster* or *slower*.)

3. Answer either HW (“hardware”) or SW (“software”) concerning what entity performs each of the following tasks:

- (a) (10) Saving  $c(\text{EBX})$  within a device driver.
- (b) (10) Setting  $c(\text{IDT})$ .
- (c) (10) Setting  $c(c(\text{IDT})+8)$ .
- (d) (15) Saving the “bread crumbs” when an interrupt is detected.
- (e) (10) Acknowledging an interrupt.
- (f) (15) Evicting a cache block.

**Solutions:**

- 1. DMA
- 2. larger; 6; faster
- 3. SW; SW; SW; HW; HW; HW