| 1. | parameter transmission mechanism | output | | | | | | |
|----|----------------------------------|--------|----|---|-----|-----|-----|-----|
| | call-by-value | 10 | 13 | 0 | 200 | 150 | 175 | 190 |
| | call-by-reference | 5 | 8 | 0 | 200 | 20 | 175 | 190 |
| | call-by-name | 5 | 8 | 0 | 200 | 150 | 175 | 190 |

- 2. a. The output would be 7.
 - b. The output would be 14.
 - c. The output would be 24.
- 3. Using call—by—value, when the argument func(1, 1) is evaluated the function would recurse indefinitely, since the actual parameter func(1, 1) corresponding to the formal parameter a would first be evaluated. For the call func(1, 1) the parameter b is nonzero, and the function will call itself recursively with the exact same parameter values it was itself called with. This is not a good idea if you have anything productive you want to do after that.

If call-by-need were used instead, a would never be evaluated for the call func(1, 1) since it's not used, so func(1, 1) would never be called. Evaluating b is safe, as func(0, 0) would cause a recursive call in which b's value was 0, causing the function to simply return 0 instead of calling itself recursively again.

- 4. Any variable whose address can only be resolved at runtime may cause this procedure to not function correctly; specifically when the address of one parameter depends on the other's value. For example, the call swap(i, c[i]) won't swap the values of i and c[i].
- 5. The least restrictive condition: do not allow a variable whose address can only be resolved at runtime to be an actual parameter.
- 6. The output that would be produced if dynamic scoping were used would be:
 - e: 9 1 8 2
 - b: 8 2 6 3
 - a: 9 3 8 7

The output that would be produced if static scoping were used would be:

- e: 9 1 8 2
- b: 9 6 8 8
- a: 9 6 8 8