Worksheet 9.2: Virtual Memory, Multiple-Choice Questions

Choose the right answer. There is only **one** correct answer.

1. Which of the following **is not necessarily** performed by the kernel in handling a page fault?
   a. Issuing a read request to the disk to fetch the missing frame into memory.
   b. Saving the state of the process that caused the page fault.
   c. Restoring the state of the process that caused the page fault.
   d. Granting the CPU to a process other than the process that caused the page fault.
   e. Updating the page table to indicate that the missing frame is now in physical memory.

2. Which of the following is (are) true about the working set size?
   a. A larger working set size increases the chances of having page faults.
   b. A larger working set size decreases the chances of having page faults.
   c. If the sum of working set sizes exceeds the number of available frames, the system will thrash.
   d. The working set size of a process remains constant throughout the process's lifetime.
   e. Both b and c are correct. f. Both a and d are correct**.** **g. Both a and c are correct.**

3. How does the page-fault frequency (PFF) technique prevent thrashing?
   a. It takes frames from a process if its page fault rate falls below a certain lower bound.
   b. It gives more frames to a process if its page fault rate falls below a certain lower bound.
   c. It takes frames from a process if its page fault rate exceeds a certain upper bound.
   d. It gives more frames to a process if its page fault rate exceeds a certain upper bound.
   e. Both a and c are true. **f. Both a and d are true.** g. Both b and c are true.

4. Which of the following is true about memory frame allocation?
   a. With global frame allocation, the execution time of a process depends on other processes.
   b. Global frame allocation does a better job at utilizing memory than local frame allocation.
   c. Local frame allocation does a better job at utilizing memory than global frame allocation.
   d. The minimum number of frames that must be allocated to a process is hardware independent.
   e. **Both a and b are true.** f. Both a and c are true. g. Both b and d are true.

5. Which of the following is **not** true about virtual memory (VM) and physical memory (PM)?
   a. VM allows the OS to load more processes in memory, thus giving more options to the scheduler.
   b. VM decreases the amount of I/O needed.
   c. Implementing VM does not require any hardware support.
   d. With VM, a program can be run even if the size of its logical address space exceeds the PM size.
   e. A VM system may load into physical memory an *instruction* that the program will never execute.
   f. A VM system may load into physical memory a *data element* that the program will never access.