MCQ on Chapter 1:

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1. What is the swap space in the disk used for?  
   **(A)** Saving temporary html pages  
   **(B)** Saving process data  
   **(C)** Storing the super-block  
   **(D)** Storing device drivers

**Answer:** **(B)**  
  
**Explanation:** Swap space is typically used to store process data.

1. Increasing the RAM of a computer typically improves performance because:  
   **(A)** Virtual memory increases  
   **(B)** Larger RAMs are faster  
   **(C)** Fewer page faults occur  
   **(D)** Fewer segmentation faults occur

**Answer:** **(C)**  
  
**Explanation:** When there is more RAM, there would be more mapped virtual pages in physical memory, hence fewer page faults. A page fault causes performance degradation as the page has to be loaded from secondary device.

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1. Virtual memory is  
   **(A)** Large secondary memory  
   **(B)** Large main memory  
   **(C)** Illusion of large main memory  
   **(D)** None of the above

**Answer:** **(C)**  
  
**Explanation:** Virtual memory is illusion of large main memory.

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1. Page fault occurs when  
   **(A)** When a requested page is in memory  
   **(B)** When a requested page is not in memory  
   **(C)** When a page is currupted  
   **(D)** When an exception is thrown

**Answer:** **(B)**  
  
**Explanation:** [Page fault](http://en.wikipedia.org/wiki/Page_fault) occurs when a requested page is mapped in virtual address space but not present in memory.

5. Thrashing occurs when  
**(A)** When a page fault occurs  
**(B)** Processes on system frequently access pages not memory  
**(C)** Processes on system are in running state  
**(D)** Processes on system are in waiting state

**Answer:** **(B)**  
  
**Explanation:** Thrashing occurs processes on system require more memory than it has.

If processes do not have “enough” pages, the pagefault rate is very high. This leads to:  
– low CPU utilization  
– operating system spends most of its time swapping to disk

The above situation is called thrashing

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1. Physical memory is broken into fixed-sized blocks called \_\_\_\_\_\_\_\_  
   a) frames  
   b) pages  
   c) backing store  
   d) none of the mentioned

Answer: a  
Explanation: None.

1. Logical memory is broken into blocks of the same size called \_\_\_\_\_\_\_\_\_  
   a) frames  
   b) pages  
   c) backing store  
   d) none of the mentioned

Answer: b

1. Every address generated by the CPU is divided into two parts. They are \_\_\_\_\_\_\_\_\_\_\_\_  
   a) frame bit & page number  
   b) page number & page offset  
   c) page offset & frame bit  
   d) frame offset & page offset

Answer: b

1. The \_\_\_\_\_\_\_\_\_\_ is used as an index into the page table.  
   a) frame bit  
   b) page number  
   c) page offset  
   d) frame offset

Answer: b

1. The \_\_\_\_\_ table contains the base address of each page in physical memory.  
   a) process  
   b) memory  
   c) page  
   d) frame

Answer: c

1. The size of a page is typically \_\_\_\_\_\_\_\_\_\_\_\_  
   a) varied  
   b) power of 2  
   c) power of 4  
   d) none of the mentioned

Answer: b

1. With paging there is no \_\_\_\_\_\_\_\_ fragmentation.  
   a) internal  
   b) external  
   c) either type of  
   d) none of the mentioned

Answer: b

1. The operating system maintains a \_\_\_\_\_\_ table that keeps track of how many frames have been allocated, how many are there, and how many are available.  
   a) page  
   b) mapping  
   c) frame  
   d) memory

Answer: c

1. Paging increases the \_\_\_\_\_\_ time.  
   a) waiting  
   b) execution  
   c) context – switch  
   d) all of the mentioned

Answer: c

1. For every process there is a \_\_\_\_\_\_\_\_\_\_  
   a) page table  
   b) copy of page table  
   c) pointer to page table  
   d) all of the mentioned

Answer: a

1. In segmentation, each address is specified by \_\_\_\_\_\_\_\_\_\_\_\_  
   a) a segment number & offset  
   b) an offset & value  
   c) a value & segment number  
   d) a key & value

Answer: a

1. The segment base contains the \_\_\_\_\_\_\_\_\_\_\_\_  
   a) starting logical address of the process  
   b) starting physical address of the segment in memory  
   c) segment length  
   d) none of the mentioned

Answer: b

1. The segment limit contains the \_\_\_\_\_\_\_\_\_\_\_\_  
   a) starting logical address of the process  
   b) starting physical address of the segment in memory  
   c) segment length  
   d) none of the mentioned

Answer: c

1. When the entries in the segment tables of two different processes point to the same physical location \_\_\_\_\_\_\_\_\_\_\_\_  
   a) the segments are invalid  
   b) the processes get blocked  
   c) segments are shared  
   d) all of the mentioned

Answer: c

1. If there are 32 segments, each of size 1Kb, then the logical address should have \_\_\_\_\_\_\_\_\_\_\_\_  
   a) 13 bits  
   b) 14 bits  
   c) 15 bits  
   d) 16 bits

Answer: a  
Explanation: To specify a particular segment, 5 bits are required. To select a particular byte after selecting a page, 10 more bits are required. Hence 15 bits are required.