**University of Central Punjab**

**Faculty of Information Technology**

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**Practice Questions**

Question 1

A computer system has a 36-bit virtual address space with a page size of 8K, and 4 bytes per page table entry.

How many pages are in the virtual address space?

Question 2

Consider a system which has logical address of 7bits , physical address of 6 bits , page size of 8 byte then calculate no of pages and number of frames .

Question 3

Assume a page size of 1K and a 15-bit logical address space.

How many pages are in the system

Question 4

suppose that a normal memory access requires 200 nanoseconds, and that servicing a page fault takes 8 milliseconds. ( 8,000,000 nanoseconds, or 40,000 times a normal memory access. ) With a page fault rate of p, ( on a scale from 0 to 1 ), the effective access time is now:

( 1 - p ) \* ( 200 ) + p \* 8000000

= 200 + 7,999,800 \* p

which clearly depends heavily on p! Even if only one access in 1000 causes a page fault, the effective access time drops from 200 nanoseconds to 8.2 microseconds, a slowdown of a factor of 40 times. In order to keep the slowdown less than 10%, the page fault rate must be less than 0.0000025, or one in 399,990 accesses.

Question 5

Consider a simple paging system with the following parameters:

• 232 byes of physical memory

• Page size of 210 bytes

• 216 pages of logical address space

1. How many bits are in a logical address?

2. How many bytes in a frame?

Question 6

Physical Address = 12 bits, then Physical Address Space = 4 K words

Logical Address = 13 bits, then Logical Address Space = 8 K words

Page size = frame size = 1 K words (assumption)

