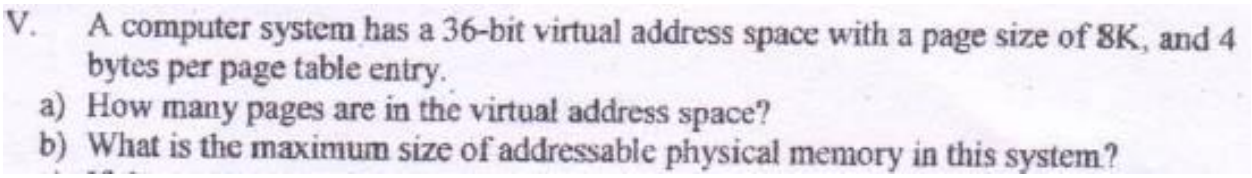
Practice Question (Memory)

1. 
V. A computer system has a 36-bit virtual address space with a page size of 8K, and 4 bytes per page table entry.
a) How many pages are in the virtual address space?
b) What is the maximum size of addressable physical memory in this system?

2. **Consider a logical address space of 64 pages each of 1024 words mapped onto physical memory of 32 frames.**
    - **How many bits are there in Logical address Space?**
    - **How many bits are there in physical address space?**
3. Given five memory partitions of 500 KB, 350 KB, 250 KB, 420 KB, and 450 KB (in order), how would the, best fit and worst-fit algorithms place processes of 325 KB, 150 KB, 400 KB, and 375 KB (in order)?
4. The Logical memory and physical memory is 32k and 512 words respectively. If Page size is of 64 words, formulate logical and physical memory space. How many pages logical and physical memory can accommodate? Write number of entries in the page table also.
5. Given five memory partitions of 500 KB, 350 KB, 250 KB, 420 KB, and 450 KB (in order), how would the, best fit and worst-fit algorithms place processes of 325 KB, 150 KB, 400 KB, and 375 KB (in order)?
6. Suppose, memory space is partitioned into 8 fixed size slots of 8 MB each. Assume 8 processes are currently requesting memory usage with sizes indicating as [2 MB, 4 MB, 3 MB,7 MB, 9 MB, 6 MB, 1 MB, 8 MB]. Calculate the internal fragmentation if Single partition is allocated to one process only. Also Calculate internal partition when multiple partition can be allocated to one process only.
7. An address space is specified by 24 bits and the corresponding memory space by 16 bits. How many words are there in the address space? How many words are there in the memory space? If a page consists of 2K words, how many pages and blocks are there in the system?