The following list of formulas is very useful for solving the numerical problems based on paging.

## ****For Main Memory-****

* Physical Address Space = Size of main memory
* Size of main memory = Total number of frames x Page size
* Frame size = Page size
* If number of frames in main memory = 2X, then number of bits in frame number = X bits
* If Page size = 2X Bytes, then number of bits in page offset = X bits
* If size of main memory = 2X Bytes, then number of bits in physical address = X bits

## ****For Process-****

* Virtual Address Space = Size of process
* Number of pages the process is divided = Process size / Page size
* If process size = 2X bytes, then number of bits in virtual address space = X bits

## ****For Page Table-****

* Size of page table = Number of entries in page table x Page table entry size
* Number of entries in pages table = Number of pages the process is divided
* Page table entry size = Number of bits in frame number + Number of bits used for optional fields if any

**NOTE**

* In general, if the given address consists of ‘n’ bits, then using ‘n’ bits, 2n locations are possible.
* Then, size of memory = 2n x Size of one location.
* If the memory is byte-addressable, then size of one location = 1 byte.
* Thus, size of memory = 2n bytes.
* If the memory is word-addressable where 1 word = m bytes, then size of one location = m bytes.
* Thus, size of memory = 2n x m bytes.