

## Definition

**Paging** is a memory management scheme that eliminates the need for contiguous allocation of physical memory.

**Physical address:** A physical address is the actual address in main memory where data is stored.

**Logical address(Virtual Address) :** It is an address that is generated by the CPU during program execution. The process accesses memory using logical addresses.

**Logical Address or Virtual Address (represented in bits):** An address generated by the CPU

- Logical Address Space or Virtual Address Space( represented in words or

bytes): The set of all logical addresses generated by a program

- Physical Address (represented in bits): An address actually available on memory

unit

- Physical Address Space (represented in words or bytes): The set of all physical

addresses corresponding to the logical addresses

\*\*\*The Physical Address Space is conceptually divided into a number of fixed-size blocks, called **frames**.

\*\*\*\* The Logical address Space is also splitted into fixed-size blocks, called *pages*.

*Page number(p)*: Number of bits required to represent the pages in Logical

Address Space or Page number

*Page offset(d)*: page size of Logical Address Space

*Frame number(f)*: Number of bits required to represent the frame of Physical

Address Space or Frame number.

- *Frame offset(d)*: frame size of Physical Address Space

### **Inverted Page Table:**

#### **Advantages:**

- i) Reduced memory space
- ii) Optimal and less complex
- iii) Simplified page swapping
- iv) Improved cache performance

#### **Disadvantages:**

- i) Longer lookup time
- ii) Difficult shared memory implementation

## Non-Contiguous Memory Allocation:

### *Advantages:*

- i) reducing memory waste
- ii) It slows down the memory execution

### **Disadvantages**

- i) The downside of this memory allocation is that the access is slow