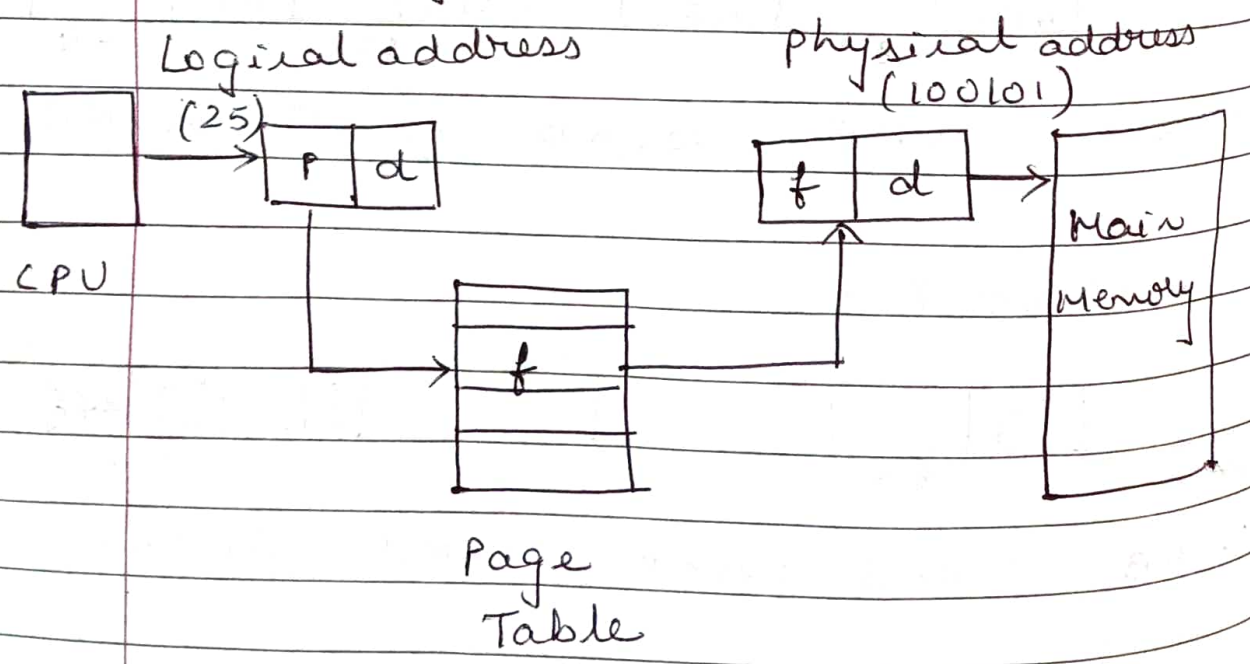
Page No.
Date

* Numerical on Paging

* Address Translation

Steps

1) CPU generates logical address (eg. 25)
2) Divide that address into two parts
   1. Page number (p)
   2. Offset (d)
3) Locate the frame (f) corresponding to the page (p) from the page table.
4) Generate physical address by combining "f" and "d" (eg: 100101)



Page No.
Date

Q. Using a page size of 4 bytes & physical memory of 32 bytes, find the physical address if the logical address is 4.

→ Solution

Page Size = 4 bytes = $2^n = 2^2$

(i.e $n = 2$)

Address space = 32 = $2^m = 2^5$

(i.e. $m = 5$)

Logical address = 4

In binary = 00100

0	5
1	6
2	4
3	2

Page Table (given in question)

Page number = (higher) $(m-n)$ bits

= 5 − 2 = 3 bits

i.e. 001 = 1

Offset = (lower) n bits

i.e lower 2 bits

= 00 = 0

From page table, if page no is 1, then frame = 6

Physical address = frame × page size + offset

= 6 × 4 + 0 = 24