Chapter 20

1. One is needed. Because the page table entry contains firstly page directory index, then page table index.

2.

In seed 0, only VPN 0 and 3 are valid.

The first 2 bits (indicating VPN) of the following virtual addresses are:

11, 01, 01, 10, 11

So only the first and last ones are valid.

The other seeds follows the same method.

3. Slower accesses? Because there is one layer of indirection (page directory).