**解答以下问题**

**4. Consider a swapping system in which memory consists of the following hole sizes in memory order: 10 MB, 4 MB, 20 MB, 18 MB, 7 MB, 9 MB, 12 MB, and 15 MB.Which hole is taken for successive segment requests of**

**(a) 12 MB**

**(b) 10 MB**

**(c) 9 MB**

**for first fit? Now repeat the question for best fit, worst fit, and next fit.**

**首次适配算法：20 MB、10 MB、18 MB。**

**最佳适配算法：12 MB、10 MB和9 MB。**

**最差适配算法20 MB、18 MB和15 MB。**

**下次适配算法：20 MB，18MB和9MB。**

1. **What is the difference between a physical address and a virtual address?**

**（1）物理地址。实际内存空间使用物理地址，内存芯片上地址**

**（2）虚拟地址是指进程的地址空间的逻辑地址。因此，具有32位字的计算机可以生成高达4 GB的虚拟地址，而不管该计算机的内存是否大于或小于4 GB。**

**6. For each of the following decimal virtual addresses, compute the virtual page number and offset for a 4-KB page and for an 8 KB page: 20000, 32768, 60000.**

**对于4kb的页面大小，（page，offset）对是（4， 3616），（8，0）和（14，2656）。**

**对于8kb的页面大小，它们是（2， 3616）、（4、0）和（7，2656）。**

**7. Using the page table of Fig. 3-9, give the physical address corresponding to each of the following virtual addresses:**

**(a) 20**

**(b) 4100**

**(c) 8300**

**(a) 20+40962=8212**

**(b) 4100=4069+（4100-4069）=4100**

**(c) 8300=64096+(8300-4096\*2)=24684**

**13. If an instruction takes 1** **nsec and a page fault takes an additional n nsec, give a formula for the effective instruction time if page faults occur every k instructions.**

**每k条指令出现一次缺页，会给平均访问时间增加n/K nsec的额外开销，所以平均指令访问时间需要1+N/K nsec。**

1. **A machine has 48-bit virtual addresses and 32-bit physical addresses. Pages are 8 KB. How many entries are needed for a single-level linear page table?**

**物理内存是4GB**

**页面数量是4GB/8KB=2^19项**

**页面偏移量需要2^13位**

**页表域总共35位。**