1999 Paper 1 Question 11

Operating Systems

Most operating systems provide each process with its own *address space* by providing a level of indirection between virtual and physical addresses.

Give *three* benefits of this approach. [6 marks]

Are there any drawbacks? Justify your answer. [2 marks]

A processor may support a *paged* or a *segmented* virtual address space.

(*a*) Sketch the format of a virtual address in each of these cases, and explain using a diagram how this address is translated to a physical one. [8 marks]

(*b*) In which case is physical memory allocation easier? Justify your answer. [2 marks]

(*c*) Give *two* benefits of the segmented approach. [2 marks]