2001 Paper 4 Question 7

Operating System Functions

(*a*) In the context of virtual memory management:

   (*i*)   What is *demand paging*? How is it implemented?   [4 marks]

   (*ii*) What is meant by *temporal locality of reference*?   [2 marks]

   (*iii*) How does the assumption of temporal locality of reference influence page replacement decisions? Illustrate your answer by briefly describing an appropriate page replacement algorithm or algorithms.   [3 marks]

   (*iv*) What is meant by *spatial locality of reference*?   [2 marks]

   (*v*)   In what ways does the assumption of spatial locality of reference influence the design of the virtual memory system?   [3 marks]

(*b*) A student suggests that the virtual memory system should really deal with "objects" or "procedures" rather than with pages. Make arguments both for and against this suggestion.   [4 and 2 marks respectively]

.