2001 Paper 10 Question 8

Operating System Foundations

(*a*) Describe how a pool of disc I/O buffers might also be used as a disc block cache. [2 marks]

(*b*) What are the advantages and disadvantages of a buffer-cache? [3 marks]

(*c*) Give examples of where concurrency control is needed in the management of the buffer-cache. [6 marks]

(*d*) Describe how application-level read and write requests are satisfied from the buffer-cache. Include any potential delay due to concurrency control. For simplicity you may assume that a request is satisfied from a single disc block. [Hint: you may find it useful to give some detail of the data held in a disc block header in the buffer-cache.] [9 marks]