1999 Paper 10 Question 9

Operating System Functions

FIFO, LRU, and CLOCK are three page replacement algorithms.

(*a*) Briefly describe the operation of each algorithm.   [6 marks]

(*b*) The CLOCK strategy assumes some hardware support. What could you do to
allow the use of CLOCK if this hardware support were not present?   [2 marks]

(*c*) Assuming good temporal locality of reference, which of the above three
algorithms would you choose to use within an operating system? Why would
you not use the other schemes?   [2 marks]

What is a *buffer cache*? Explain why one is used, and how it works.   [6 marks]

Which buffer cache replacement strategy would you choose to use within an
operating system? Justify your answer.   [2 marks]

Give *two* reasons why the buffering requirements for network data are different
from those for file systems.   [2 marks]