1993 Paper 11 Question 7

Operating System Functions

In relation to virtual memory, describe the terms *segment*, *page* and *translation lookaside buffer* (TLB).   [6 marks]

The operating system for a microprocessor supports a virtual memory model which implements both segmentation and paging. The only hardware assistance for the virtual memory system in the microprocessor is an on-chip TLB.

Outline the data structures held by the operating system.   [5 marks]

Describe the actions of the operating system in response to an address exception due to not matching the address issued by the processor in the TLB.   [5 marks]

How can the operating system use access permissions to aid its page replacement policy?   [4 marks]