

1997 Paper 11 Question 6

Operating System Foundations

Outline the components of interrupt handling and, where appropriate, discuss the tradeoffs of implementation by hardware or by software. [7 marks]

Give *two* examples of machine instructions on which mutual exclusion can be built. [2 marks]

Explain why temporarily suppressing interrupts can be used as a basis on which to build mutual exclusion for a uniprocessor but not for a multiprocessor. [2 marks]

For a uniprocessor describe how interrupt control, together with scheduling policy, can be used to protect writeable data shared by processes and hardware-driven routines. [3 marks]

Outline how user-level (top-down) requests for I/O can be synchronised with hardware-driven I/O software. [6 marks]