

2001 Paper 3 Question 7

Operating System Functions

- (a) What are the key issues with scheduling for shared-memory multiprocessors? [3 marks]
- (b) *Processor affinity*, *task scheduling* and *gang scheduling* are three techniques used within multiprocessor operating systems.
- (i) Briefly describe the operation of each. [6 marks]
- (ii) Which problem does the processor affinity technique seek to overcome? [2 marks]
- (iii) What problem does the processor affinity technique suffer from, and how could this problem be overcome? [2 marks]
- (iv) In which circumstances is a gang scheduling approach most appropriate? [2 marks]
- (c) What additional issues does the virtual memory management system have to address when dealing with shared-memory multiprocessor systems? [5 marks]