

2008 Paper 1 Question 8

Operating Systems

- (a) In general we can consider a process to move between five *process states* during its existence. Discuss, with the aid of a diagram, the circumstances in which a process will enter or leave each of these states. [6 marks]
- (b) Both Unix and Windows NT use *dynamic priority scheduling*. Compare and contrast their scheduling algorithms, with a particular focus on how dynamic priorities are managed. [8 marks]
- (c) Which data structures would you use if implementing a dynamic priority scheduling algorithm? Justify your answer. [2 marks]
- (d) Some industry predictions suggest that in less than five years we shall have chips with hundreds or even thousands of CPUs on them. What kinds of scheduling algorithms do you think will be appropriate for such systems? What problems do you foresee? [4 marks]