

2011 Paper 2 Question 4

Operating Systems

- (a) In the context of memory management:
- (i) What is the *address binding* problem? [1 mark]
 - (ii) The address binding problem can be solved at compile time, load time or run time. For **each** case, explain what form the solution takes, and give one advantage and one disadvantage. [3 marks each]
 - (iii) Under which circumstances do *external* and *internal* fragmentation occur? How can each be handled? [4 marks]
 - (iv) What is the purpose of a *translation lookaside buffer* (TLB)? [2 marks]
- (b) Describe how UNIX handles user authentication. [4 marks]