

# 2001 Paper 3 Question 1

## Concurrent Systems

A committed ACID transaction transforms a database from one consistent state to another.

- (a) Define the property of isolation in a transaction system. [2 marks]
  
- (b) The property of isolation may be enforced either at transaction commit or at all times throughout transaction execution. Describe how each of these approaches may be implemented, and the tradeoffs between the approaches, for
  - (i) two-phase locking [5 marks]
  - (ii) timestamp ordering [5 marks]
  - (iii) optimistic concurrency control [8 marks]