Distributed Systems

A distributed database is modelled as distributed persistent objects. Each transaction is submitted to a single node which assumes the role of coordinator, responsible for managing and committing the transaction.

(a) Outline how each of the following approaches to concurrency control is implemented for distributed objects:

(i) strict two-phase locking [4 marks]

(ii) strict timestamp ordering [4 marks]

(iii) optimistic concurrency control [4 marks]

(b) Explain how atomic commitment of transactions is achieved in a system employing one of the above methods of concurrency control. [8 marks]