2003 Paper 12 Question 4

Distributed Systems

(*a*) You are to design a component of a distributed system which takes action on the arrival of an alarm event from another component.

Discuss the design issues, relating to the characteristics of distributed systems, of the component and its communication.   [4 marks]

(*b*) You are to design a service that takes in streams of messages from distributed sources and notifies its clients when certain specified patterns of messages occur.

Discuss the design issues associated with supporting the following operators for constructing message patterns, where A and B represent messages:

(*i*)   A OR B;

(*ii*) A AND B (unordered pairs);

(*iii*) A BEFORE B (ordered pairs).

[16 marks]