

## COMPUTER SCIENCE TRIPOS Part II – 2012 – Paper 8

### 10 Principles of Communications (JAC)

- (a) *Randomness* is used in several places in communication protocols. Discuss the role of random choices with regard to resource allocation, making reference to telephony call routing, Ethernet Media Access Control, and Queue Management in IP routers. [15 marks]
- (b) Some researchers have claimed that RED (Random Early Discard) queueing can reduce the latency through a bottleneck router for all users.
- (i) How might this be the case? [3 marks]
- (ii) How could the addition of Explicit Congestion Notification help make it so? [2 marks]