

COMPUTER SCIENCE TRIPOS Part IB – 2013 – Paper 5

4 Computer Networking (AWM)

(a) A spy elects to use a self-synchronizing scrambler to encode his secret message. Explain why this will not give him any privacy and why his self-synchronising approach would be better used by a communications engineer. [5 marks]

(b) With the assistance of annotated diagrams explain CSMA/CD and CSMA/CA.

In your explanation, note the physical constraints on packets and networks that these approaches impose. [10 marks]

(c) Consider the network buffer sizing formula $B = 2T \times C$

(i) Explain this formula. [2 marks]

(ii) Discuss the network architecture and traffic assumptions made in the use of this formula. [3 marks]