

2004 Paper 7 Question 2

Digital Communication II

- (a) Describe the operation of the TCP congestion control scheme, covering the two phases of *slow start*, *congestion avoidance* and the triggers of *duplicate ack* and *timeout* that set it in train. [10 marks]
- (b) A computer is connected to the Internet via a wireless link using the packet service from the mobile phone company. This offers 30 kbps data rate, but has a widely varying round-trip time across the wireless hop from the computer to the next hop in the backbone of between 700 milliseconds and 1.1 seconds. It also has an average packet loss rate of 25%. Using time-sequence diagrams to illustrate the fate of data packets and acknowledgements, show the impact that this has on the throughput that a typical TCP implementation would achieve. [10 marks]