

## COMPUTER SCIENCE TRIPOS Part IB – 2026 – Paper 5

### 2 Computer Networking (djg11)

- (a) Describe the functions of *broadcast*, *multicast* and *anycast* in the context of both local-area networks (LANs) and the Internet, and compare them against each other. [4 marks]
- (b) A packet network being *reliable* implies it should always be available. List three further, typical reliable delivery guarantees or other aspects of reliability. List two guarantees provided by a *secure* network connection (e.g. as provided by TLS). [5 marks]
- (c) Techniques for providing network reliability can be broadly classified as hop-by-hop or end-to-end.
- (i) Explain what these terms mean and provide a real-world example of both. [4 marks]
- (ii) Which is possibly more important and why can it be advantageous for a long-distance connection to use both? [2 marks]
- (d) A team is implementing software to run in a set of post office checkout tills. The leader suggests it is straightforward to ensure consistent balances using reliable multicast and suggests that L2 (LAN data-link layer) broadcast will serve just as well.
- (i) Why might this look like a tempting suggestion? [1 mark]
- (ii) Can multicast ever be reliable? [2 marks]
- (iii) If not, what alternatives should be considered in this situation? [2 marks]