

## COMPUTER SCIENCE TRIPOS Part II – 2022 – Paper 9

### 10 Principles of Communications (jac22)

- (a) The task is to design a Transport Protocol for the back plane – there is no packet loss and the delay between one core and another is extremely low. What are the consequences for flow and congestion control design choices? [7 marks]
- (b) The task is now to design an Interplanetary Transport Protocol – a flow completes before a single ack gets back. There is radio noise, sometimes long lasting (e.g. solar flares) What are the design consequences for reliability, flow and congestion control? [7 marks]
- (c) Your last task is to design a many-to-one Protocol – such a protocol might be used, for example, to deliver telemmetry data from many autonomous electric vehicles to the car manufacturer, so that they can monitor and adjust the parameters affecting motor and battery performance. What are the design consequences for reliability, flow and congestion control? [6 marks]