

COMPUTER SCIENCE TRIPOS Part IB – 2024 – Paper 5

1 Computer Networking (awm22)

http v1.2
TCP
IPv4
IEEE 802.11 (WiFi)
2.4 GHz wireless band

Consider this communications-stack diagram. Each layer of the stack can provide multiplexing support to the layer above, mapping a single channel into multiple independent communications channels.

For each of the following examples of the diagram's communications-stack layers, discuss how multiplexing is put into practice, including an example of how relevant data is identified and how such data is mapped to and from the layer above.

- (a) A 2.4 GHz physical layer. [4 marks]
- (b) A data-link layer. [4 marks]
- (c) An IPv4 network layer. [4 marks]
- (d) A TCP transport layer. [4 marks]
- (e) A web server using HTTP v1.2. [4 marks]