

ITS323 – Quiz 1

Name: _____ ID: _____ Marks: _____ (10)

Question 1 [4 marks]

Consider the TCP/IP protocol architecture.

- (a) Which layer includes the task of reliably delivery of data across a single link?
- (b) TCP and UDP are protocols in which layer?
- (c) Which layer deals with transmitting light signals across an optical fibre?
- (d) What type of network is used for communications between campuses or between cities?

Question 2 [3 marks]

You have paid for a 500kb/s link from your office to the ISP. When transferring a large file to one of the servers in the ISP's network your application reports a download rate of 250kb/s. The application segmented the file into segments of 800B each.

- (a) How many bits are transmitted by the server for each segment? Assume no errors or other non-data packets are need. [2 marks]

- (b) Assuming you cannot change the amount of overhead per packet, and you cannot afford to get a higher speed link, what could be done to increase the efficiency? [1 mark]

Question 3 [3 marks]

Computer A is connected to computer B via a 12km, 100kb/s link. Computer B is also connected to computer C via a 6km, 100kb/s link. The processing delay for a packet at each computer is $100\mu\text{s}$. There is no queuing delay. Every packet transmitted contains 125B.

(a) What is the propagation delay across the link from A to B? [1 mark]

(b) What is the transmission delay across the link from B to C? [1 mark]

(c) What is the total delay to send a packet from A to C? [1 mark]