SIIT ITS323

ITS323 - Quiz 2

Name:				
ID:			Mark:	(out of 10)
Question 1 [4 ma	nrks]			
Consider a netwo	rk with two links	s:		
Computer	F	Router	Server	
	link1	link2		

- Link 1: full-duplex; 1Mb/s; 23μs propagation time
- Link 2: full-duplex; 100Mb/s; 6µs propagation time

On the Computer, you click on a link in a browser which triggers a 100 Byte message to be sent to the Server. The server processes the request and sends a 1000 Byte response. What is the response time, that is, the time from when you click on a link until the response is received? Assume all processing and queuing delays are 0, *except* a 10µs queuing delay at the Router. You must show calculations.

Quiz 2 9 Jul 2010 1

SIIT ITS323

Question 2 [3 marks]

a) Draw a plot of the following signal in the frequency domain. [2 marks]

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s(t) = 40\sin(180 \pi t) + 5\sin(360 \pi t) + 2\sin(400 \pi t) + \sin(500 \pi t)
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b) What is the absolute bandwidth of the above signal? [1 mark]

Question 3 [3 marks]

A receiver receives a 200kHz signal with power 310µW.

a) If the channel also contains noise of $10\mu W$, what is the theoretical data rate possible? [2 marks]

b) Assuming the noise cannot be controlled, explain how can the data rate be increased, without increasing the bandwidth. [1 mark]

Quiz 2 9 Jul 2010 2