ITS323 – Quiz 4

Name: _____

ID: _____ Mark: _____ (out of 10)

Question 1 [2 marks]

Assume an analog transmission system is used for transmitting voice calls from SIIT Bangkadi to SIIT Rangsit over a single link. Each voice call from a user is sent with centre frequency of 10kHz and has a bandwidth of 5kHz. What is the minimum bandwidth required for the Bangkadi-Rangsit link to support a maximum of 12 voice calls when using FDM? [2 marks]

Question 2 [2 marks]

Explain an disadvantage of Statistical TDM (compared to Synchronous TDM). [2 marks]

Question 3 [6 marks]

Consider a link between A and B that has a one-way propagation delay of 20ms. Stop-and-Wait ARQ is used as the error control protocol over the link. Each frame with data has a transmission time of 10ms. Acknowledgements have a transmission time of 1ms. Assume all processing and queueing delays are 0.

a) Which of the following values is appropriate for a timeout interval? (circle only one answer) Explain why. (You will only receive marks if the explanation is correct) [2 marks]

15ms 35ms 55ms 75ms 95ms 105ms 115ms

Explanation:

b) The source A has 2 original data frames to send to destination B. Source starts transmitting the 1st frame at time 0. Unfortunately the 2nd data frame sent is lost before reaching destination B. There are no other errors. Assuming the values above (including your selected timeout interval), calculate the time when the 2nd original data frame has been fully (and successfully) received by the destination B. (You must show calculations) [4 marks]