

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 8kHz and has a bandwidth of 4kHz. 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 advantage of Synchronous TDM (compared to Statistical TDM). [2 marks]

Question 3 [6 marks]

Consider a link between A and B that has a one-way propagation delay of 10ms. Stop-and-Wait ARQ is used as the error control protocol over the link. Each frame with data has a transmission time of 5ms. 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]

10ms 15ms 20ms 30ms 40ms 50ms 120ms

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]