

FIT1005
Networks and Data Communications
Tutorial – Week 6

Objective of this tutorial:

The main purpose of this tutorial is to make students reflect on the main points highlighted in each of the questions and get them to construct useful meanings from what they already know.

How to participate in the tutorial:

Form groups of four students in each and discuss the answers for the following reflective questions with the group members. After spending about 10-15 minutes for each question, discussing with group members, discuss your solutions with the tutor and other groups. The tutor will provide feedback on your solutions.

Reflective questions:

1. With serial transmission, signalling elements are sent down the line one at a time. Each signalling element may be
 - Less than one bit
 - One bit
 - More than one bit

What are the implications of each of the above bit levels?

2. Data are transferred between a sender and receiver at a rate of 1Mbps. The receiver's clock ticks 5% faster than the sender's clock. Under this situation, what are the implications if the receiver will attempt to sample at the centre of each bit? How can you overcome any negative implication, if any?
3. Differentiate between error-detection and error-correction. In some situations, rectifying errors using error-detection techniques have their limitations. Elaborate on this.
4. Explain in terms of data link control and physical layer concepts how error and flow control are accomplished in synchronous time division multiplexing.
5. Consider a transmission system using frequency division multiplexing. What cost factors are involved in adding one more pairing of stations to the system?