

# CSE3020 Network Technology

## Semester 1, 2004

### Tutorial 4 -Week 5

**Question T4.1** - Briefly discuss the physical and transmission characteristics of the following

types of guided transmission media:

- (a) Twisted Pair.
- (b) Coaxial Cable.
- (c) Optical Fiber.

**Question T4.2** - Briefly discuss the following wireless transmission techniques and their applications:

- (a) Terrestrial Microwave.
- (b) Satellite Microwave.
- (c) Broadcast Radio.
- (d) Infrared.

**Question T4.3** - Suppose that a sender and receiver use asynchronous transmission and agree

not to use any stop elements. Could this work? If so, explain any necessary conditions.

**Question T4.4** - A data source produces 7-bit IRA characters. Calculate the percentage of

overhead and the maximum effective data rate (rate of IRA data bits) over a 2400 bps line for the following:

- (a) Asynchronous transmission, with a 1.5-unit stop element and a parity bit.
- (b) Synchronous transmission, with a frame consisting of 48 control bits and 128 information bits. The information field contains 8-bit (parity included) IRA characters.
- (c) Same as part (b), except that the information field is 1024 bits.

**Question T4.5** - Why we need a null modem when providing a DTE-DTE interface without

DCEs? Explain the operation of each null modem connection in Figure 1.

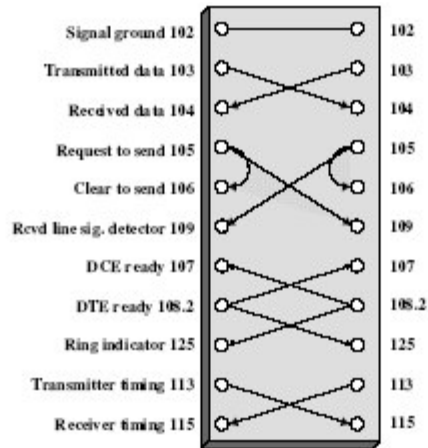


Figure 1: Example of a null modem for Question T4.5.

**Question T4.6** - With the aid of sketches, briefly explain how faults can be isolated in V.24/EIA-232 on a transmission link.