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CSIT127

Lab1 Signal and data, Transmission medium

1.Digital signals can be transported easily and more accurate.

- Negligible or zero distortion due to noise during transmission.
- The rate of transmission is higher.
- Multi directional transmission concurrently and longer distance transmission is possible.
- Video, audio, and text messages can be translated into the device language.
- Digital signals are flexible, and system upgrade is easier.
- The effect of distortion, noise, and interference is much less in digital signals as they are less affected.
- Digital circuits are easy to design and cheaper than analog circuits.
- Their security is better and can be encrypted and compressed easily.
- The digital signals are easier to edit, manipulate, and configure.
- Digital signals can be cascaded without loading issues.
- Digital circuits are more reliable.
- Digital signals are free from observational errors.

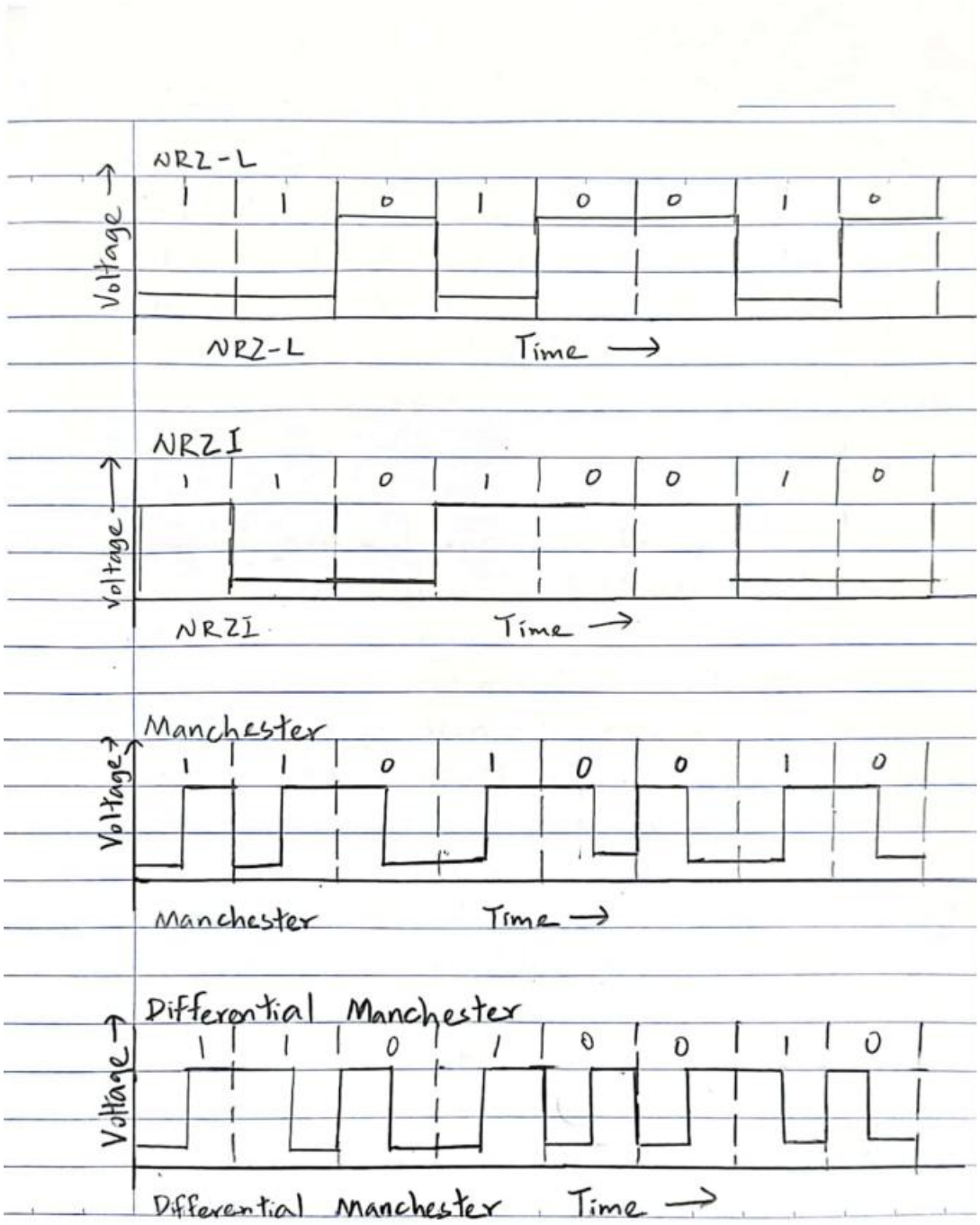
2.

The Baud rate refers to the total number of signal units transmitted in one second. The Bit rate refers to the total Bits transmitted in one unit time. Baud rate indicates the total number of times the overall state of a given signal changes/ alters.

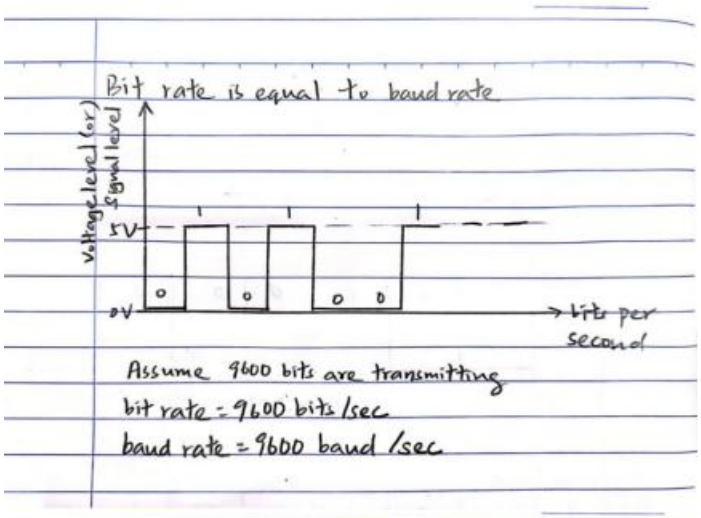
The basic difference between Bit Rate and Baud Rate is that the Bit Rate is defined as the number of bits (binary 0s and 1s) transmitted over a network in unit time, whereas Baud Rate is defined as the number of signal units transmitted over a network in unit time. Thus, bit rate and baud rate both related terms, and the relationship between these terms is given by, Bit Rate = Baud Rate × Number of Bits per Baud. The higher the baud rate, the more bits per second that are transferred.

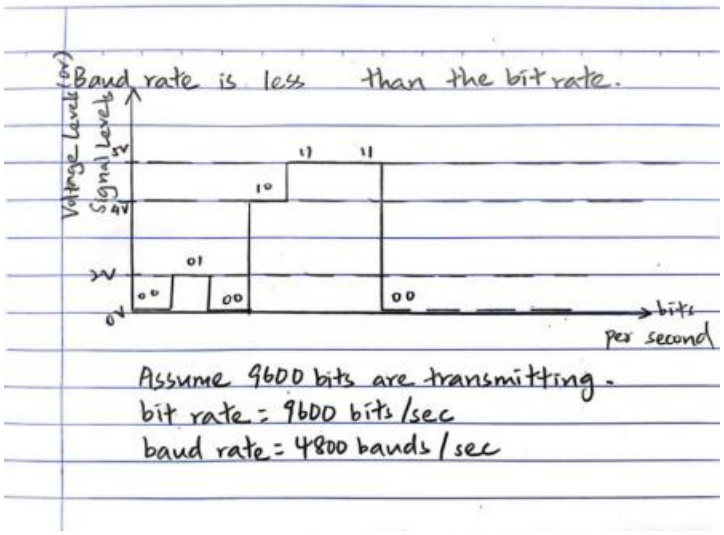
In practice, Bit rate is more important when we are concerned about the efficiency of a computer, while the Baud Rate is important in data transmission.

3.


NRZ-L
Voltage
1 1 0 1 0 0 1 0
NRZ-L
Time
NRZI
Voltage
1 1 0 1 0 0 1 0
NRZI
Time
Manchester
Voltage
1 1 0 1 0 0 1 0
Manchester
Time
Differential Manchester
Voltage
1 1 0 1 0 0 1 0
Differential Manchester
Time

4.
Baud rate can never greater than the bit rate.





5. Radio broadcasting, satellite communication, and broadcast television.

6. Frequency division multiplexing is associated with analog signals.

7. Round robin order.

8.
Wireless connection -Laptop to receive antenna

Microcomputer to LAN connection-Receiving antenna to local area network

LAN to LAN connection- Corporate network connections

LAN to WAN connection- Corporate connection to Internet

9.Microcomputer to Internet connection.
Local area network to the wide area network.

10. Wireless telephone connection
Wide area network to wide area network

11. Satellite and microwave connection
Wide area network to wide area network

12. a. Data compression-Presentation
b. Multiplexing -Transport, Physical
c. Routing- Network
d. Definition of a signal’s electrical characteristics- Physical
e. E-mail -Application
f. Error detection-Data link, transport
g. End-to-end flow control - Transports