**Assignment**

1.Convert the following Data into Digital Signal using Polar NRZ, Biphase, Bipolar, MLT-3 and Scrambling Techniques.

**Data: Suppose your student ID is 123\_45\_6789**

**So, your Data will be 19(First and last digit of your ID together)**

2.The attenuation of a signal is -10 dB. What is the final signal power if it was originally 5 W?

3. If the bandwidth of the channel is 5 Kbps, how long does it take to send a frame of

100,000 bits out of this device?

4. What is the transmission time of a packet sent by a station if the length of the

packet is 1 million bytes and the bandwidth of the channel is 200 Kbps?

5. What is the total delay (latency) for a frame of size 5 million bits that is being sent

on a link with 10 routers each having a queuing time of 2 Ils and a processing time

of 1 Ils. The length of the link is 2000 Km. The speed of light inside the link is 2 x

*108 mls.* The link has a bandwidth of 5 Mbps. Which component of the total delay

is dominant? Which one is negligible?