COE 342, Term 012

Data & Computer Communications

Programming Assignment #2

Due Date: Monday 29/04/02

Q.1.

(i) It is required to write a program to implement an encoder that receives binary data and produces the encoded data in a digital signal using each of the following digital encoding techniques:

- Nonreturn to Zero-Level (NRZ-L)
- Nonreturn to Zero Inverted (NRZI)
- Bipolar-AMI (alternate mark inversion)
- Pseudoternary
- Manchester
- Differential Manchester
- B8ZS
- HDB3

For NRZ-L and NRZ-I assume that binary 0 is represented by a positive signal and binary 1 is represented by a negative signal. Also, assume that the reference value is negative for all the encoding techniques. You can produce the encoded signals using text format by using the + sign to indicate a positive signal, - sign to indicate a negative signal, and 0 to indicate 0 level. However, producing the encoded signals in a waveform style is a plus and will be given a bonus. The binary data can be entered interactively or read from a file. Provide the source code and the executable program in a floppy disk. Also, include a Readme file on how to run the program and the expected input.

(ii) Test the correctness of your program by generating the output for the following binary data: 01001100011110000000110000010. Include a hard copy of the encoded signals based on this input.