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Experiment - 2

Aim:-

Software Used:-

Theory:-

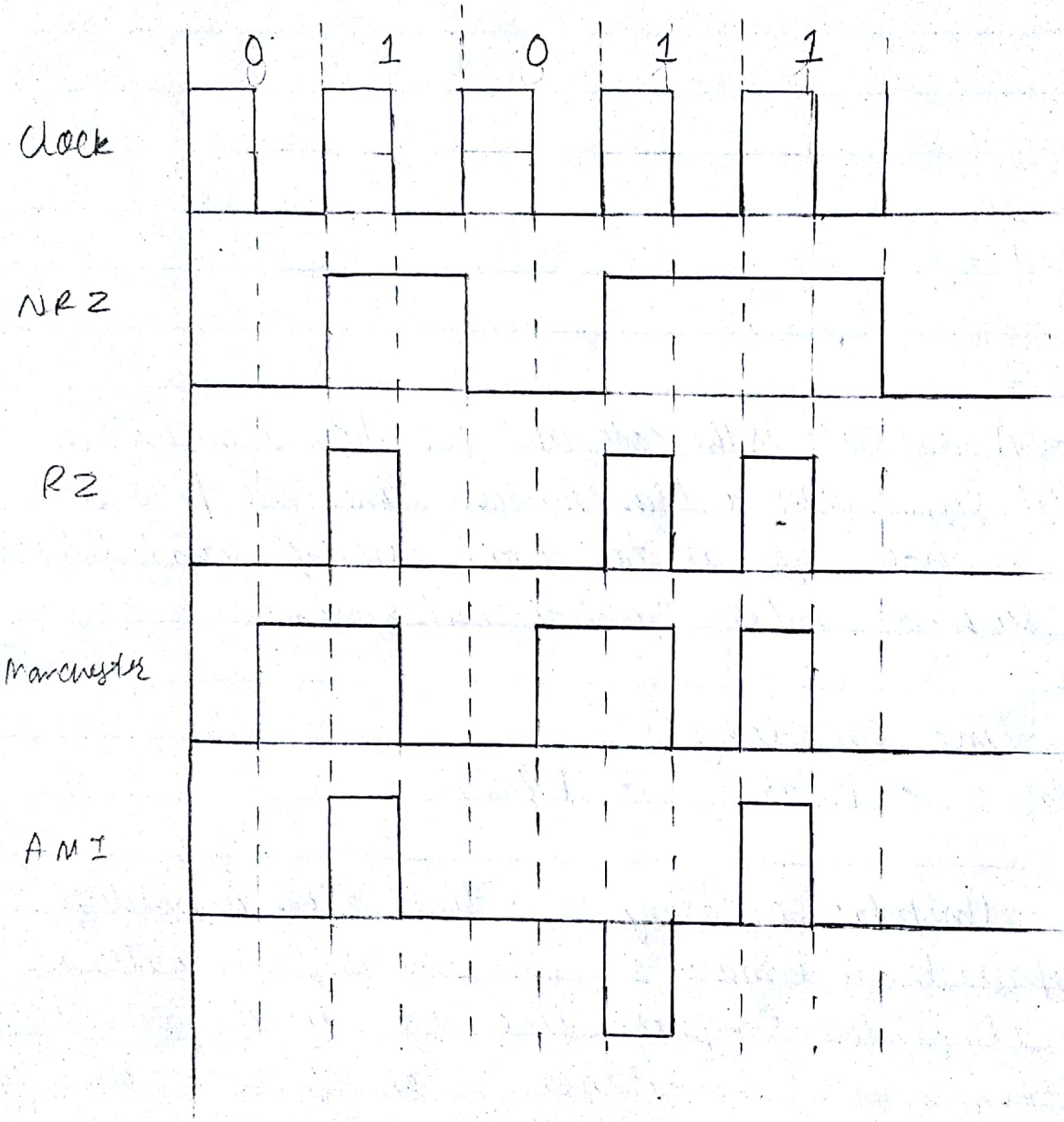
Line Code :- A Line Code is the code used for data transmission of a digital signal over a transmission line. The process of coding is chosen so as to avoid overlap and distortion of signal such as inter-Symbol interference.

3 Types of line encoding :-

- Unipolar
- Polar
- Bipolar.

Unipolar :- Unipolar encoding is a line code. A positive voltage represents a binary 1, and zero volts indicates a binary 0. It is the simplest line code, directly encoding the bitstream, and is analogous to on-off keying in modulation.

Bipolar :- Bipolar encoding is a type of return-to-zero line code, where two non zero values are used, so that the three values are +, -, and zero. Such a signal is called a ~~double~~ binary signal



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polar :- Polar encoding represents bits by using two levels of polarity or amplitude: positive and negative. The most common type is polar encoding is NRZ.

NRZ :- A Non-Returns-to-Zero (NRZ) line code is a binary code in which ones are represented by one significant condition, usually a +ve voltage, while zeros are represented by some other significant condition, usually a -ve voltage, with no other neutral or rest condn.

RZ :- RZ refers to returns-to-Zero, It refers to a form of digital data transmission in which the binary low and high states, represented by numerals 0 and 1, are transmitted by voltage pulses having certain characteristics. The signal returns to a resting state (called zero) during the second half of each bit.

AMI (Alternate Mark Inversion) :- AMI is a bipolar encoding system where neutral (zero) voltage represents binary 0 and alternating positive and -ve voltages represents binary 1. With this line encoding it is the alternating voltages that determines the binary 1s.

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Manchester encoding :- In this technique, the actual binary data to be transmitted over the cable are not sent as a sequence of logic 1's and 0's. In this encoding a logic 0 is indicated by a 0 to 1 transition at the centre of the bit and a logic 1 is indicated by a 1 to 0 transition at the centre of the bit.