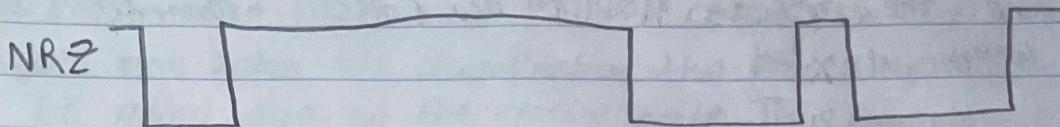
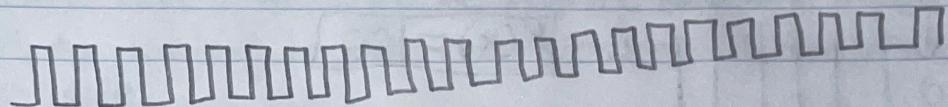


# CSE-160: HW 1-7

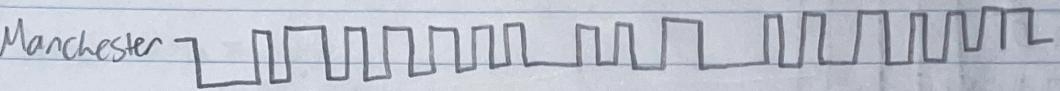
2.1:-



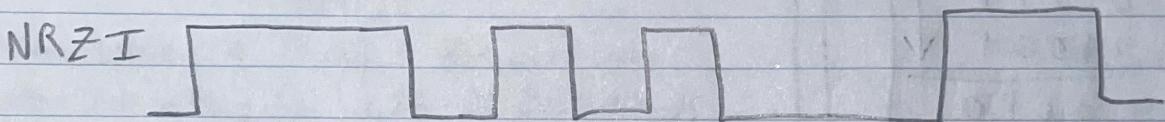
clock



Manchester



NRZI



2.4:- the 2 sequences have 00000 and 00100 repeated; we subtract it from the total number of terms found.

$$2^3 \cdot 2^3 = 14$$

$$\text{Total number of terms} \cdot 2^5 = 32 \quad 32 - 14 = 18$$

- Yes, all 4 bit sequences could be mapped to such 5 bit sequences because there exists 16 possible 4 bit sequences.

2.11:- • All we have to show here is that the sum of 1's compliment of 2 non-0x0000 number is again a non-0x0000. If there is no unsigned overflow produced, then the summation produced is just the 2's compliment and cannot be 0000 unless and until there is an overflow.

• If there is no overflow, the addition will simply be monotonic. On the other hand if there is an overflow; the summation is at least 0x0000 along with the addition of a carry bit. Thus, the addition will at least be 0x0001 after the inclusion of carry bit.