American International University- Bangladesh (AIUB)
Faculty of Engineering

Course Name:	**Data Communication**	**Course Code:**	**COE 3201**
Semester:	**Spring 2023-24**	**Term:**	**Mid**
Total Marks:	**30**	**Submission Date:**	**7-03-2024**

Course Outcome Mapping with Questions

Item	COs	POIs	K	P	A	Marks	Obtained Marks
Q1	CO4	P.a.1.C3	K5	P1		15	
Q2	CO4	P.a.1.C3	K5	P2		15	
					Total:	30	

Student Information:

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Section: F **Department: BSc CSE**

1. Your ID = AB-CDEFG-H. Convert the letters C and G into 8-bit ASCII code using ASCII chart, where the 8-th bit can be consideredas as zero. Draw the graph of the digital bit steam for the following scheme:

I. Unipolar NRZ and Unipolar RZ
II. Polar RZ, Polar NRZ-L, Polar NRZ-I (Last Signal level Positive)
III. Bipolar Manchester (‘0’ is low to high & ‘1’ is high to low) and Bipolar Differential Manchester (Last Signal level Negative)
IV. Bipolar AMI and Bipolar Pseudoternary (Last non-zero signal Level is Positive for both schemes)
V. Multiline Transmission (MLT-3), given that the last voltage level is zero and last non-zero level is positive.

2. Find the 8-bit data stream for each case depicted in figure 1. Assume, that the last signal level was negative.

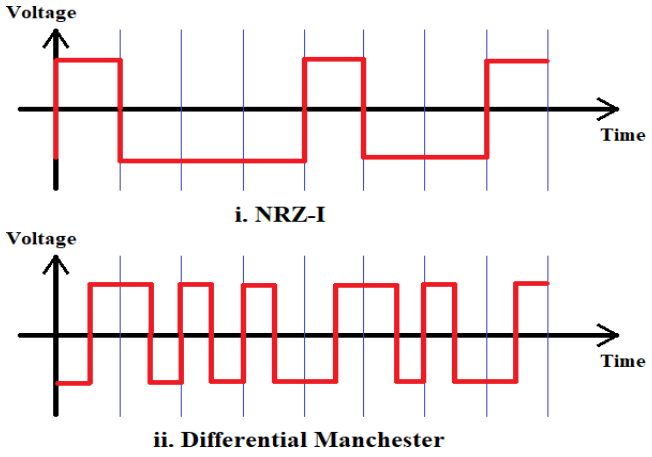


Figure: 1

Ans to the Ques NO. 1

'I'

My ID = AB-CDEFGr-H = 22-47154-1

Here,

C = 4 and Gr = 4

Now 8-bit ASCII Code,

4 = 00110100

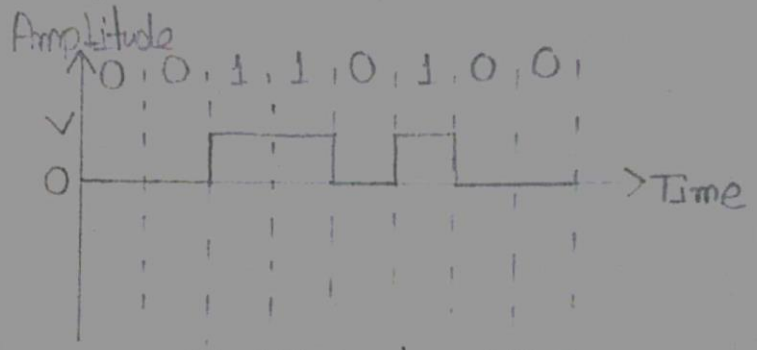


Fig: Unipolar NRZ

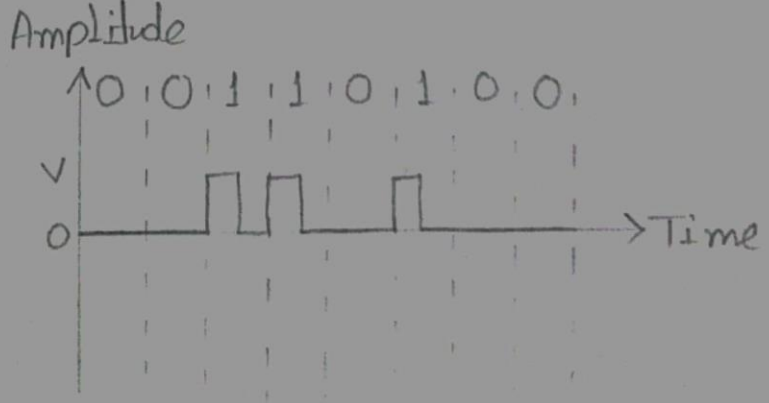


Fig: Unipolar RZ

"II"

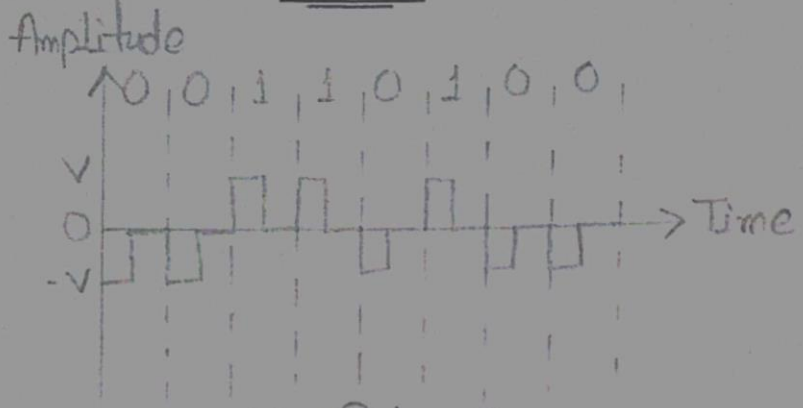


Fig: Polar Rz

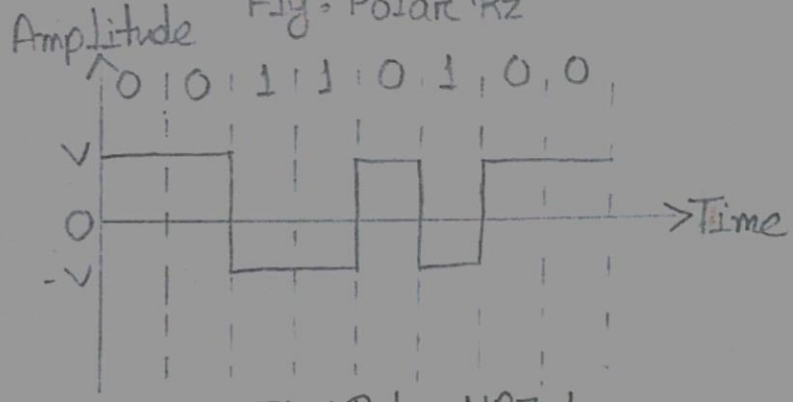


Fig: Polar NRZ-L

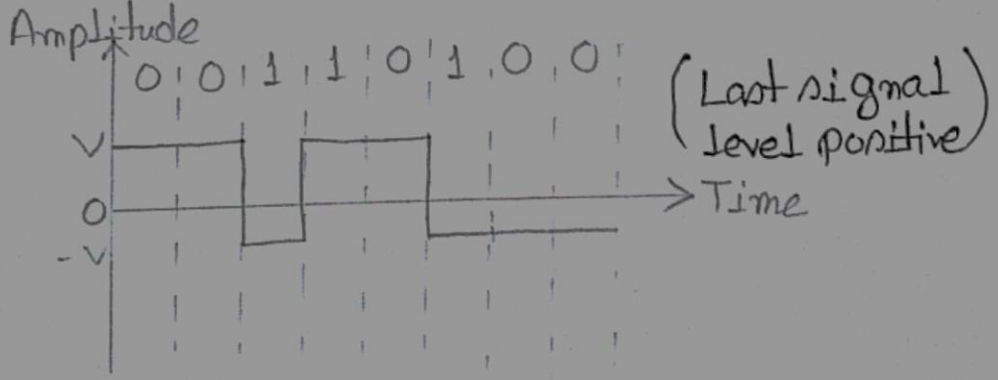


Fig: Polar NRZ-I

III

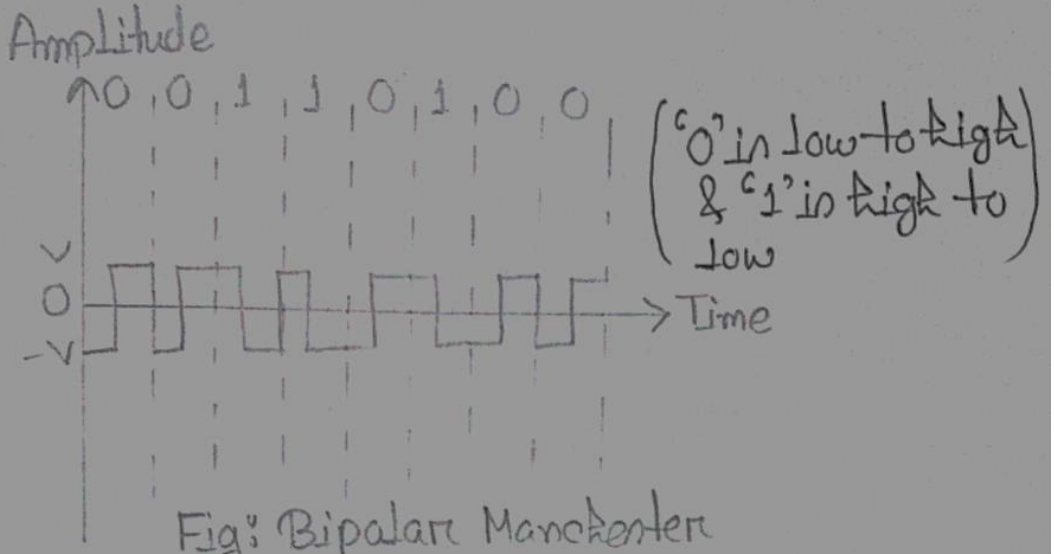


Fig: Bipolar Manchester

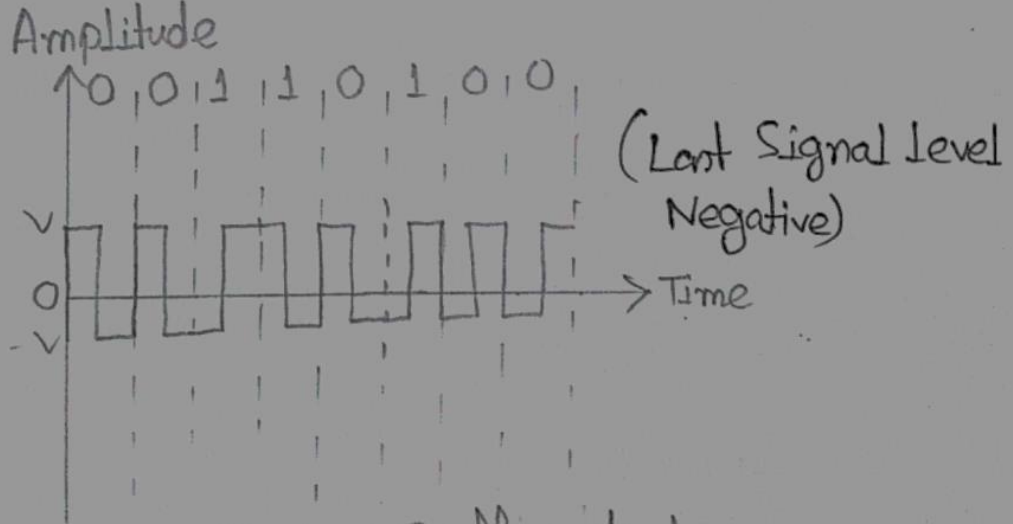


Fig: Bipolar Di-fferential Manchester

'IV'

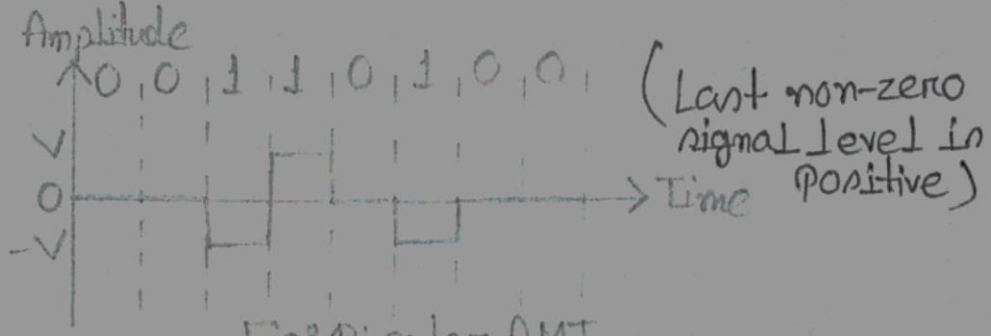


Fig: Bipolar AMI

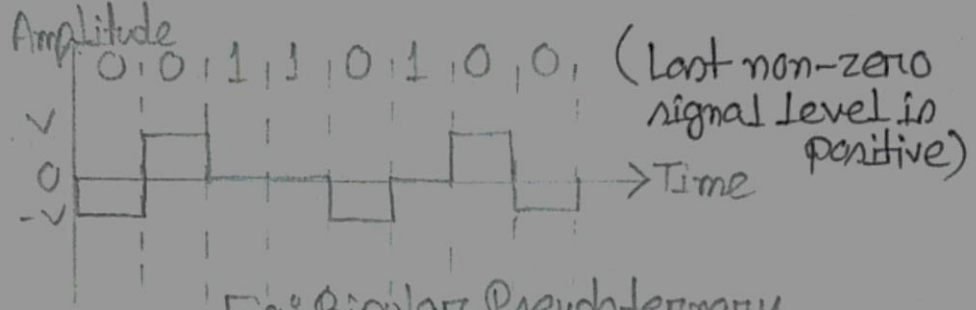


Fig: Bipolar Pseudo-ternary

'V'

Here, Last voltage level is zero and last non-zero level is positive

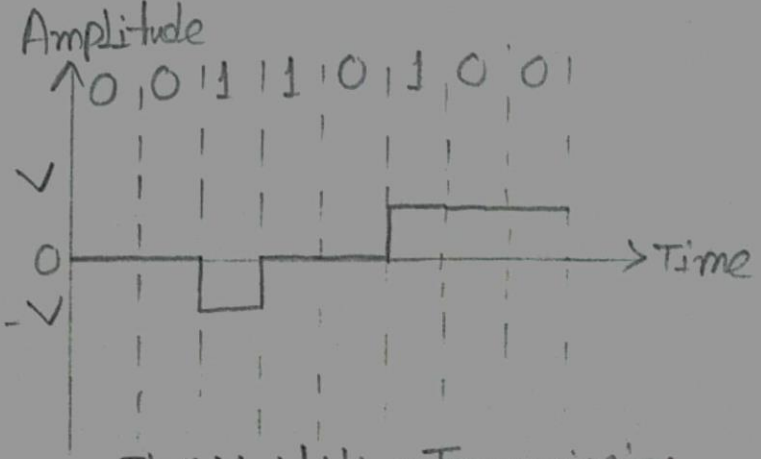
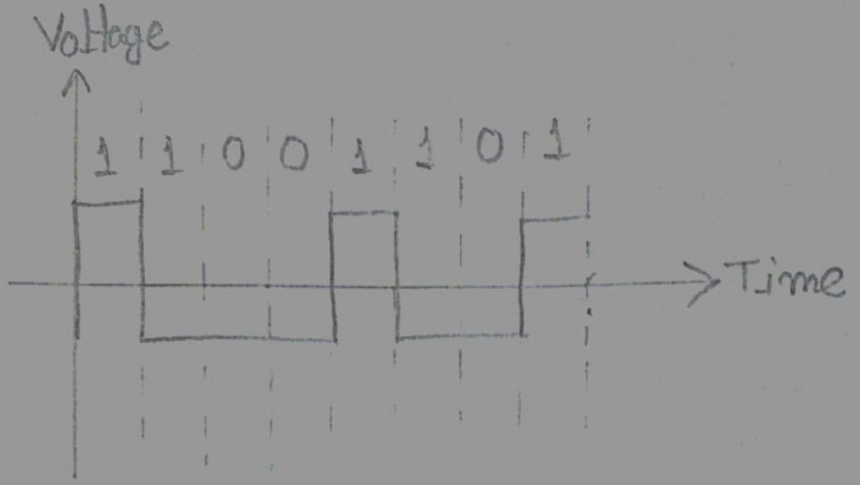
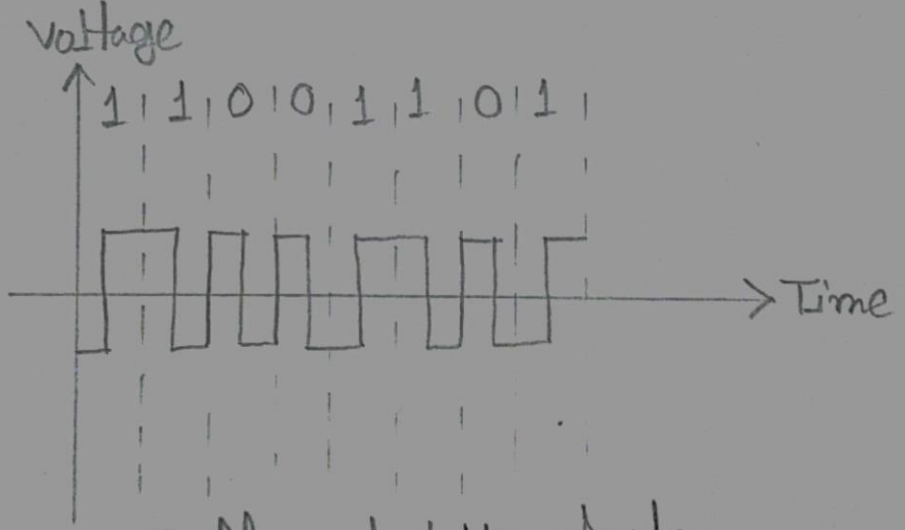


Fig: Multiline Transmission (MLT-3)

Ans to the Ques NO.2



i. NRZ-I



ii. Differential Manchester

Figure: 1