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Q = 1

Part (A)

Ans The required Bandwidth is related To bit rate and The modulation order in.

=> Id, is so That The double sided Bandwidth W = symbol rate = bus rate r_b/ divided by The nuber of bit Per symbol n. The No of bit Per symbol is = logram with M is QAM modulation order so The Bandwidth = $W = r_b / \log_2 m$.

Q = 1 Part (B)

(a) service / protocol \ :-

Ans This is a (computing) a function that is provide by one program or machine for another protocol is (computing) a set of formal rules describing how to terminate or exchange Data especially across network.

(b) service & protocol discussion on computer Networ :-

=> A network is a setup with protocol is hierarchy the divide the communication twk into several layer - A protocol is a set of rules for communication with a layer

P - T - O

A service is what the layer provides to the layer above it through in interface protocol at one layer unaware of Issues at another layer.

Q = 2

Formal Analysis Technique of Network Protocols :-

↳ Todays internet is being comming increasing complex & fragle current Performance centire techniques on network analysis and runtime verifaction have been indicate in development of robust network.

-> This Tell serveg working on recennt formal analysis techniques To aid in design implemantation & analysis of network Protocal.

-> There are four representative case studies To present classification & taxonomy and Technique such as (meta routing) are axiomatic Formulation and Alog based analysis.

(A) Formal method used for protocol.

↳ Formal method are a particular kind of mathematical based technique that improve network software qualities with granted correctness.

① addressing.
② Routing.
③ Forwarding.

① Addressing :-
Task is To Prove target addressing schemes continues to provide modes of Network.

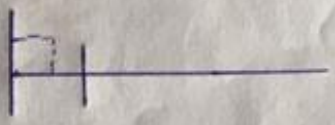
② Routing :-
To verify BGP can efficiently discover loop free routing paths.

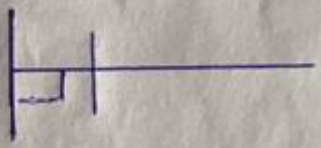
③ Forwarding :-
To address various architectural invariants and Forwarding operations.

Q=3 Part # A

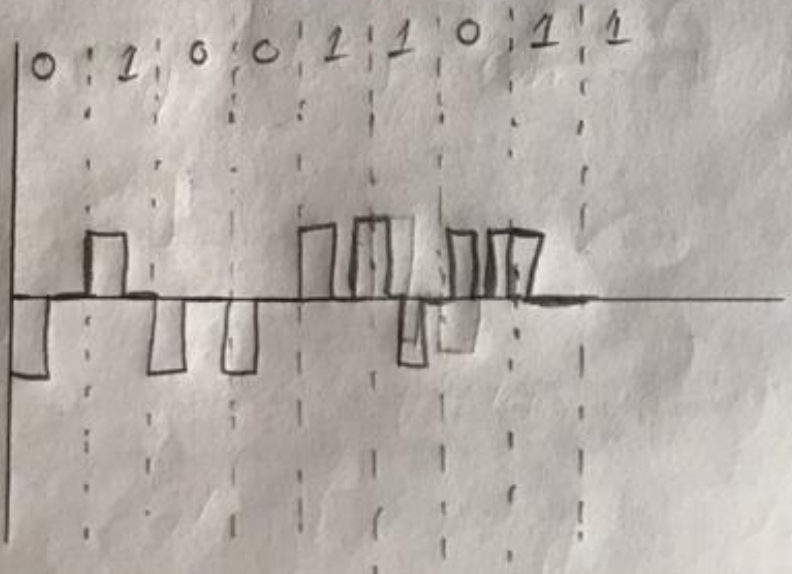
Draw The line code of sequance 01001101 using Polar Manchester:

Ans

Sequance 1 → 

0 → 

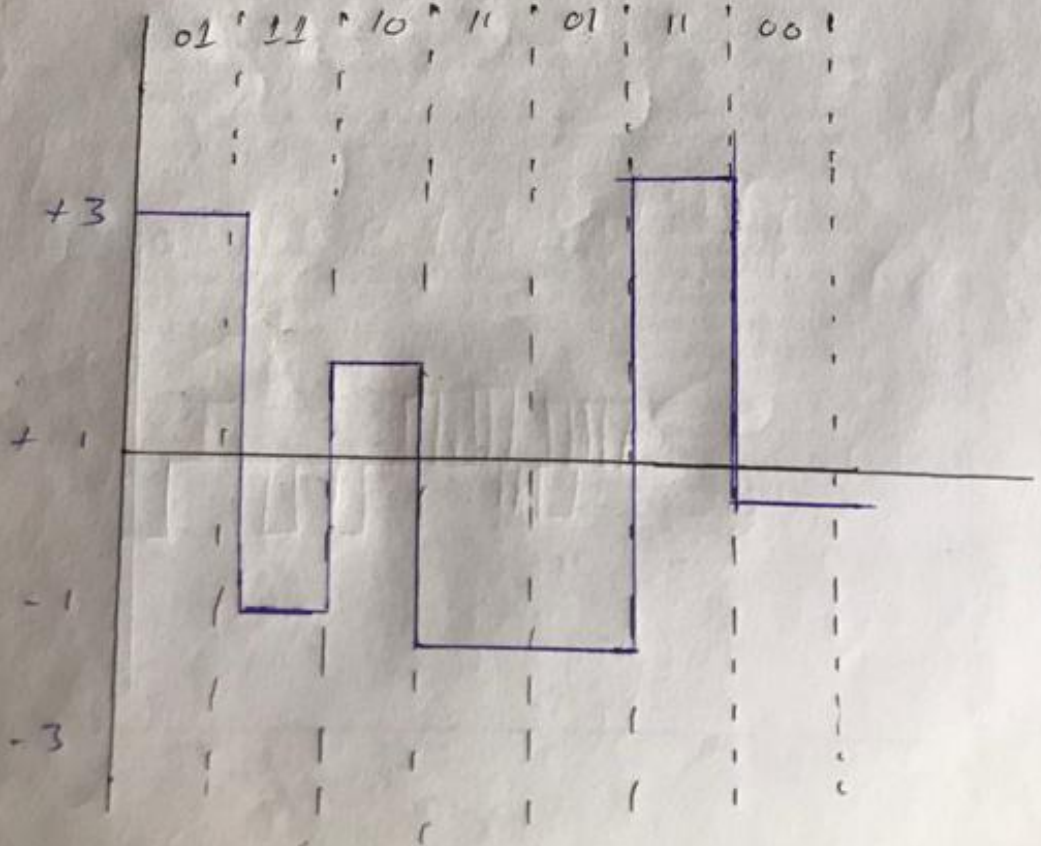
0 1 0 0 1 1 0 1



Q = 3 Part # B

Draw the line of code of sequance 01110111100 using 8B 1Q

	Previous level positive	Previous level negitive
Bits	tive Level	-ive level
00	+1	-1
01	+3	-3
10	-1	-1
11	-3	-3



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Q = 4 Post # 1

Given Data

$S = 1000$

$N = 8000$

and r & L are unknown. we find first the value of r & then the value of L.

Formula =

$S = N \times 1/r$

$r = \frac{N}{S} = \frac{8000}{1000} = 8 \text{ bit/band}$

$r = \log_2 L = L = 2^r$

$2^8 = 256$

256 Ans

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Q = 4 Part # B

Solution :-

A Normal Speed - When The sender and receiver clock or Same - The Sender Would Send 1,000,000 bits/ses But since The sender clock is 0.3 percent faster Then The receiver clock. The Data rate would be faster & The sender will be able To Send 100,3000 bits /sec Now.

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Q = 5

Ans You have received a 7-bit Hamming code is "1011011" As 1 (when mean The error is There) and if Id even Then The value of Parity bit is "0" (mean to detect whether There are any errors in This receiver hamming Code.

OR

The received Data is 1101101

$2^k - 1 > = m + k, 2^3 - 1 > = 4 + 3, 7 = 7$

$C_1 = 1011 \rightarrow$ odd

$C_2 = 1001 \rightarrow$ Even

$C_3 = 1101 \rightarrow$ odd

Bit error = 1 + 4 = 5

The correct data = 1001011