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Subject ..... Data and computer communication

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Full text: 242

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Questions No :- 01 (part A)

Anser :- The required bandwidth is related to bit rate and the modulation order M. It is so that the double sided bandwidth w = symbol rate= bit rate rb/ divided by the number of bit per symbol n. The numberof bits per symbol is = log 2M with M is the M is the QAM modulation order.

Bit rate :-

The bit rate of a file tells us how many bits of data are processed every second. Bit rates are usually measured in kilobits per second (kbps).

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Calculating bit rate :-

The bit rate is calculated using the formula:

Frequency × bit depth × channels = bit rate

A typical, uncompressed high-quality audio file has a sample rate of 44,100 samples per second, a bit depth of 16 bits per sample and 2 channels of stereo audio. The bit rate for this file would be:44,100 samples per second × 16 bits per sample × 2 channels = 1,411,200 bits per second (or 1,411.2 kbps)

A four-minute (240 second) song at this bit rate would create a file size of:

14,411,200 × 240 = 338,688,000 bits (or 40.37 megabytes)

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Part :- (B)

Anser :- Services :-

A service as a set of capabilities provided by a system (and its underlying elements) to its user. A user interacts with a service through a service access point. Note that as shown in the figure above, users interact with one service provider.

protocol :-

A Protocols is a tandard set of rules that allow electronic devices to communicate with each other. ... Protocols exist for several different applications. Examples include wired networking (e.g., Ethernet), wireless networking (e.g., 802.11ac), and Internet communication (e.g., IP).

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Services and protocols :-

An important aspect to understand before studying computer networks is the difference between a service and a protocol.

In order to understand the difference between the two, it is useful to start with real world examples. The traditional Post provides a service where a postman delivers letters to recipients. The Post defines precisely which types of letters (size, weight, etc) can be delivered by using the Standard Mail service. Furthermore, the format of the envelope is specified (position of the sender and recipient addresses, position of the stamp). Someone who wants to send a letter must either place the letter at a Post Office or inside one of the dedicated mailboxes. The letter will then be collected and delivered to its final

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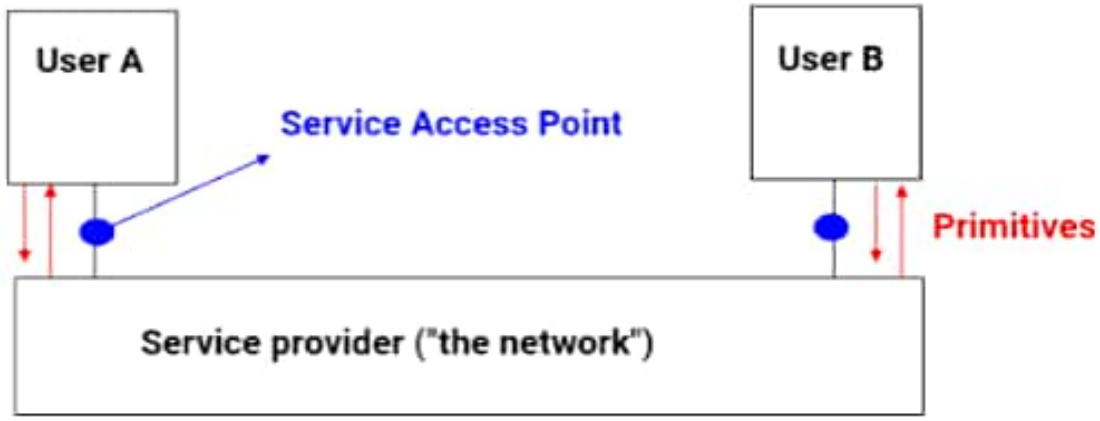
recipient. Note that for the regular service the Post usually does not guarantee the delivery of each particular letter, some letters may be lost, and some letters are delivered to the wrong mailbox. If a letter is important, then the sender can use the registered service to ensure that the letter will be delivered to its recipient. Some Post services also provide an acknowledged service or an express mail service that is faster than the regular service.



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Users and service provider :-

Many users can be attached to the same service provider. Through this provider, each user must be able to exchange messages with any other user. To be able to deliver these messages, the service provider must be able to unambiguously identify each user. In computer networks, each user is identified by a unique address, we will discuss later how these addresses are built and used. At this point, and when considering unicast transmission, the main characteristic of these addresses is that they are unique. Two different users attached to the network cannot use the same address.

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Q2 Ans Q2

Formal Analysis techiques of Network proto-cols

=> Todays internet is becoming increasing complax and fragile current performance centric techniques on network analysis and suntime verification have been inadequat in develpment of robust network

=> this talles survay working on recent formal analysis techniques to aid in design implemantation and analysis of network protocol

=> There are four representative case studies to present classifica and taxonomy of techniques such as (meta routing) sec axiomatic formulation and Alloy based analysies

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=> Formal Methods use for protocol

-> Formal method are a particular kind of mathematical based techniques that improv network software qualities with guarteed correctess

① addressing
② Routing
③ Forwarding

① Addressing :->
task is to prove target addressing schemes continous to provide nodes of network

Routing :-> to verify BGP can efficenty discover loop free rating paths

③ Forwarding :- To address virious ar chitetural invevionts and Forwarding operations.

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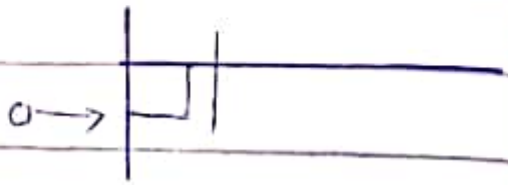
(5) 3, A)

Draw the line code of sequence 01001101 using Polar Machester

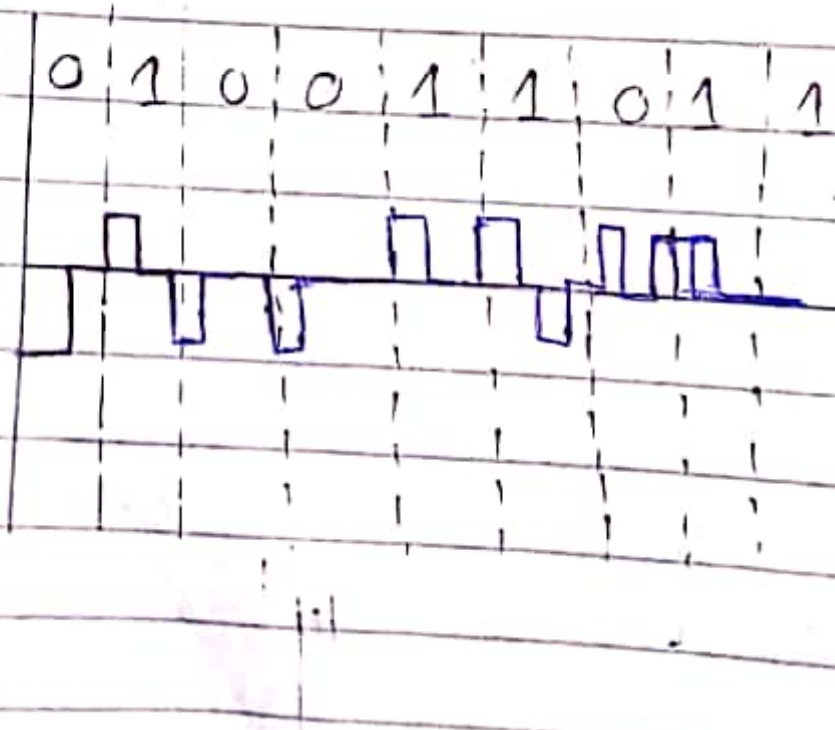
Ans:→

Sequence 1 →

0 →



01001101



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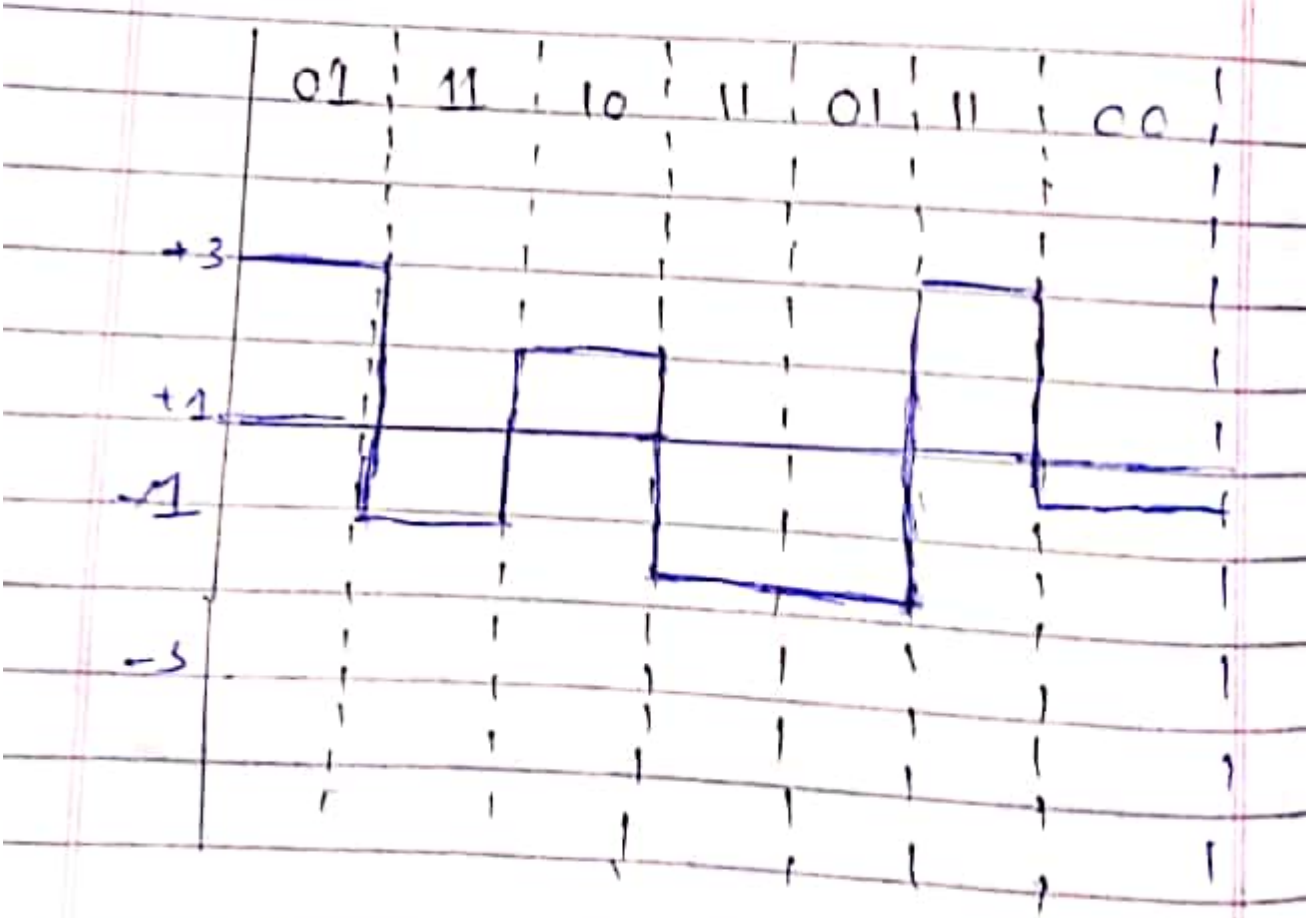
Q(3) (b) Draw the line code of sequence 01111011100 using 2B1Q

	Previous Level Positive	Previous Level negative
Bits	Positive Level	Negative level
00	+1	-1
01	+3	-3
10	-1	-1
11	-3	-3



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(CD NO 4)

Part 1

Given data:

$S = 1000$

$N = 8000$

and γ & L are unknown. we find First the value OF γ then the value OF L

Formula:

$S = N \times 1/t$

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

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

$2^8 = 256$

/256/ Ans.

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Q4 part B

Ans!

A normal speed the sender and receiver clock or same, the sender would send 1,000,000 bits/sec But since the sender clock is 0.3 percent faster then the recieved clock. the data rate would be faster and the sender will be able to send 1,003000 bits persecond now.

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Q5) A 7-bit hamming code is recieved as 1011011. Assume the even parity and State whether the recieve code is correct or wrong. if wrong locate the bit in error?

Ans:-

when as the recieved 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

$C_4 = 1101 \rightarrow$ Odd

Bit error = $1 + 4 = 5$

the correct data 1001011

we have recived a 7 bit Hamming code 1011011 as (1) his means the error is there and if it's even so the value OF parity bit is (0) it's mean to detect whether there are any error's in this recieved hamming code.

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