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185093A –Yamunanga L.K.H

Quection1

1).

The private IP address of the system is the IP address used for communication within the same network. The use of data or private IP information can be sent or received on the same network.

The public IP address of a system is the IP address used for communication outside the network. Basically, the ISP (Internet Service Provider) assigns a public IP address.

Ex:- If you have multiple computers in your house, you can use private IP addresses to target each computer in your house. In this scenario, your router gets the public IP address, and each of the computers, tablets and smartphones connected to your router (Via Wi-Fi or cable) gets a private IP address from your router via DHCP.

2).

Dynamic IP address	Static IP Address
it is provided by Dynamic Host Configuration Protocol.	It is provided by Internet Service Provider
low amount of risk than static ip address's risk.	less secure.
easy to designate	difficult to designate.
used where data is more confidential	used where data is less confidential.
maintaining cost of dynamic ip address is less	cost to maintain the static ip address is higher than dynamic.
less stable	more stable

3).

The internet system for converting names to numeric IP addresses. For example, when a URL is entered into a browser, DNS servers will return the IP address of the web server associated with that name. In this example, the DNS URL www.facebook.com converts to the IP address 204.1.8.31. Without DNS User have to type the string of four numbers and dots into him/her browser to open the site.

4).

Gateway is a hardware device that works as a "gate" between two networks. It can be a router, firewall, server, or other device that allows traffic to enter and leave from the network.

A firewall is a network security device that monitors incoming and outgoing network traffic and uses defined security rules to decide whether certain traffic is allowed or blocked. They form a barrier

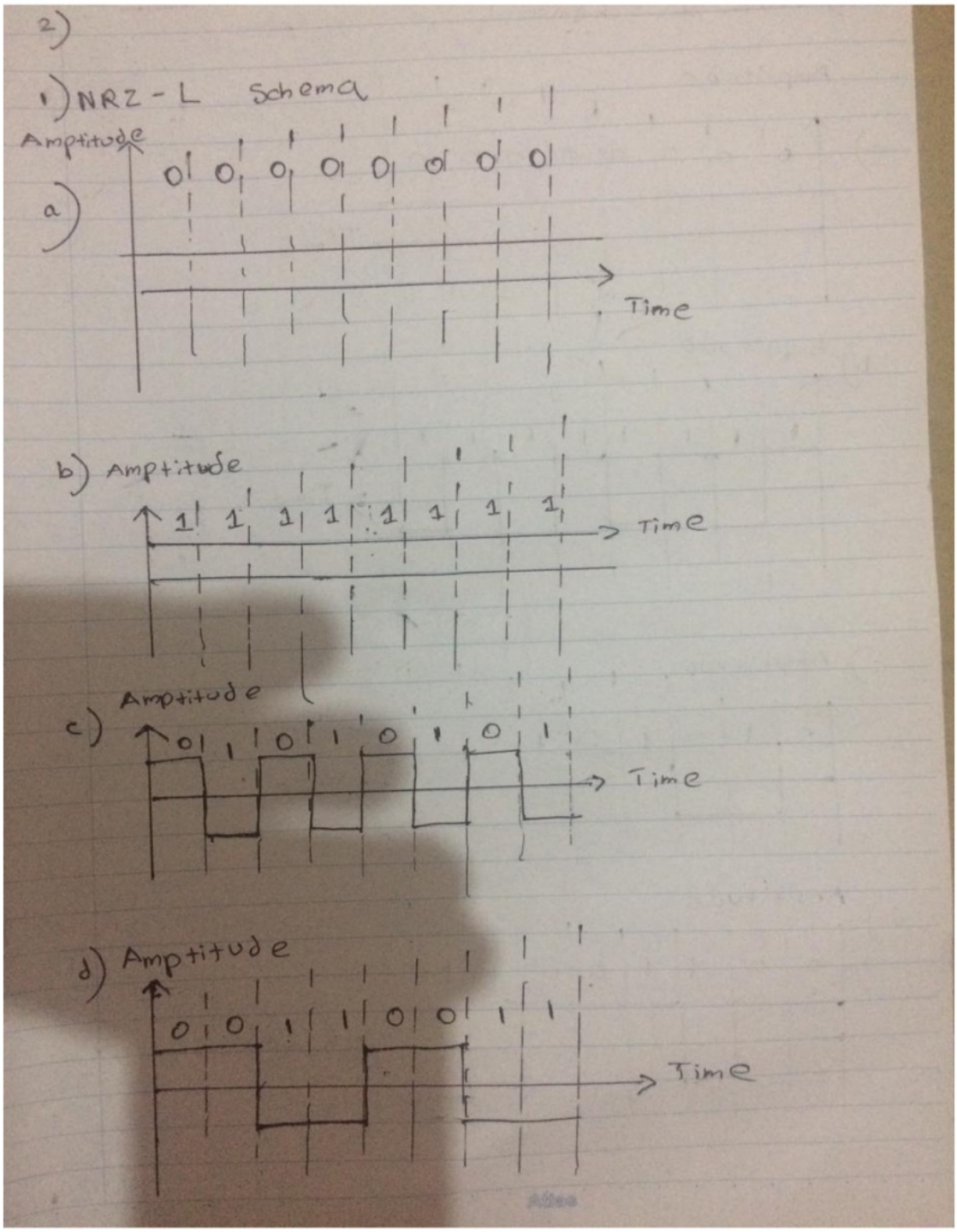
between controlled and trusted internal networks and untrusted external networks, such as the Internet. A firewall can be hardware, software, or both

5).

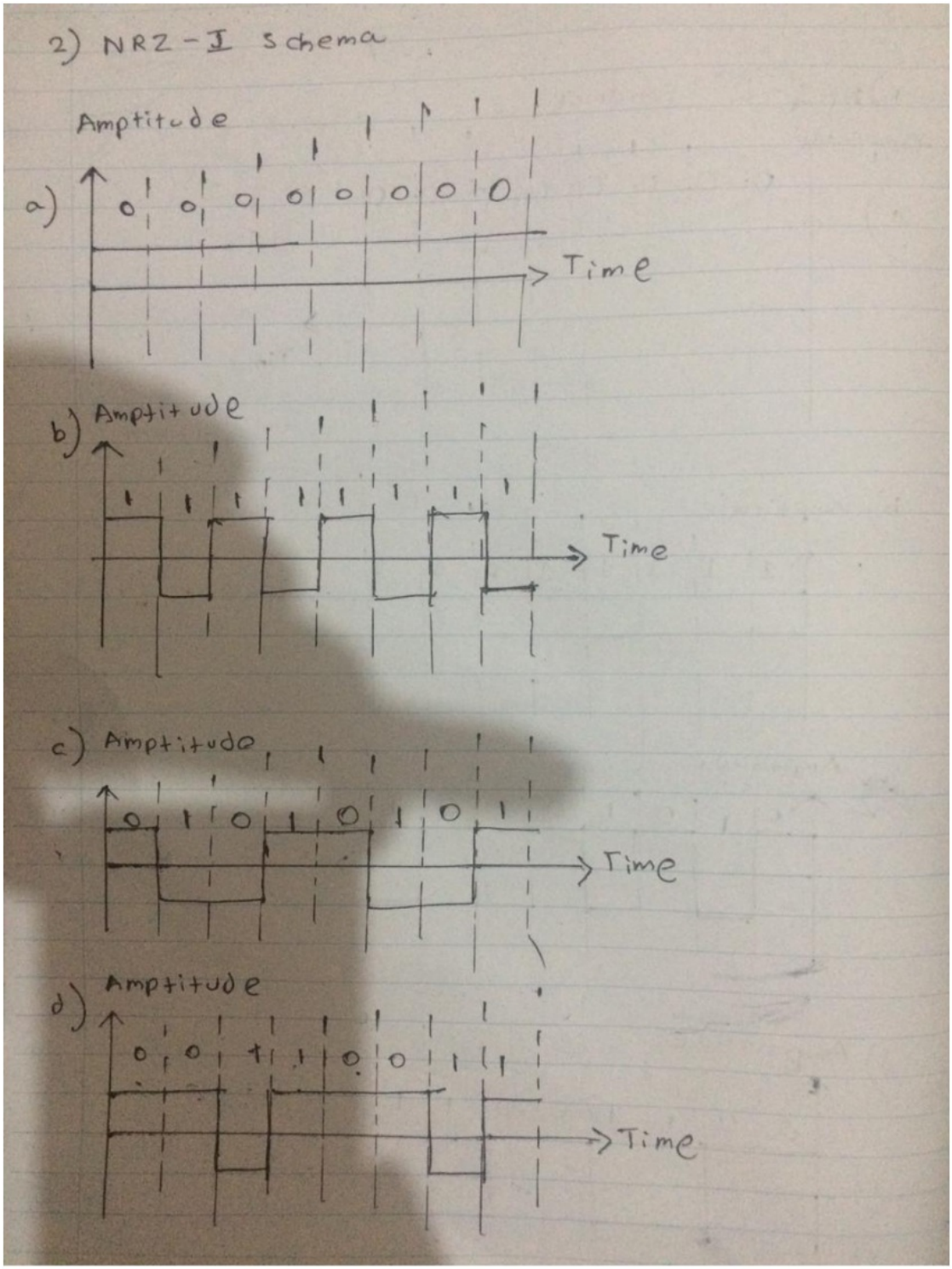
Routers guide and send data over the network using packets that contain various types of data, such as files, communications, and simple transfers such as web interactions.

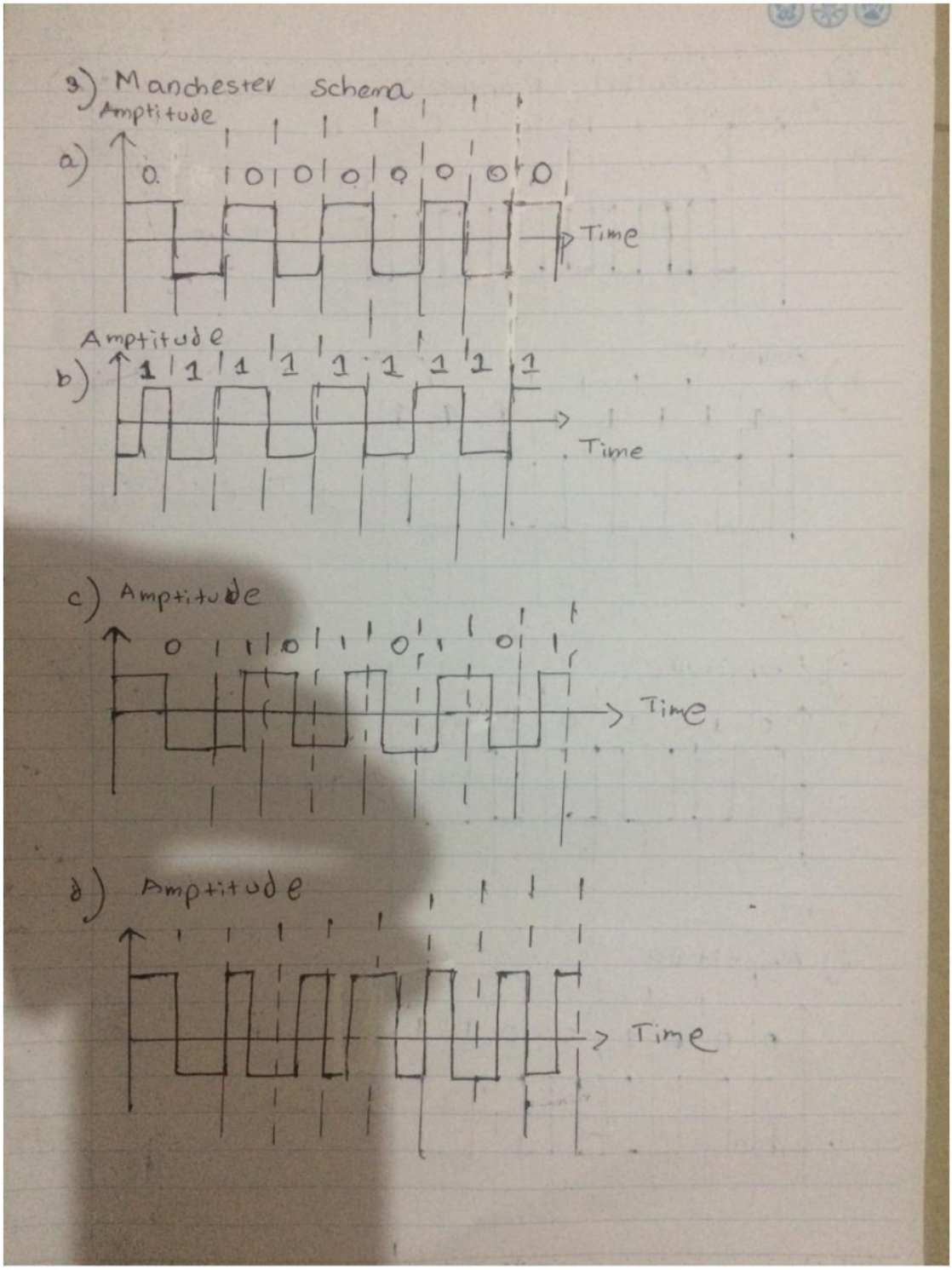
Data packets have several layers or sections, one of which contains identifying information such as sender, data type, size and, above all, the IP (Internet Protocol) address. The router reads this layer, prioritizes the data, and selects the best route for each transmission.

Quection2


2)
1) NRZ - L Schema
Amptitude
a)
0 0 0 0 0 0 0 0
Time
b) Amptitude
1 1 1 1 1 1 1 1
Time
Amptitude
c)
0 1 0 1 0 0 1
Time
d) Amptitude
0 0 1 1 0 0 1 1
Time

2) NRZ-I schema




3) Manchester schema
Amptitude
a)
0 0 0 0 0 0 0 0
Time
Amptitude
b)
1 1 1 1 1 1 1 1
Time
c) Amptitude
0 1 0 0 1 0
Time
d) Amptitude
Time

Question 2

4)

Number of bits = $\log_2 L = \log_2 1024 = 10$ bits

Sampling rate = $2 * 200kHz = 400kHz$

so,

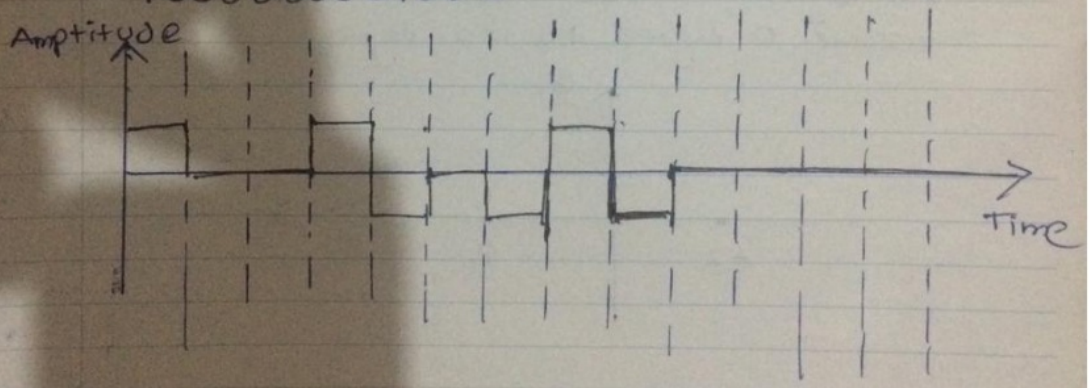
Bit rate = Sampling rate * Number of bits

= $400kHz * 10$

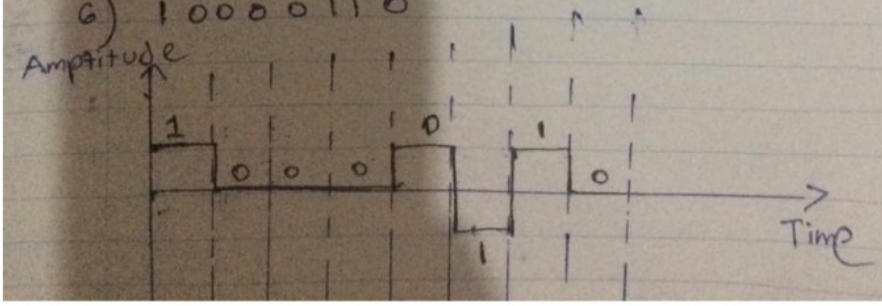
= 4 Mbps.

5)

1000000001000



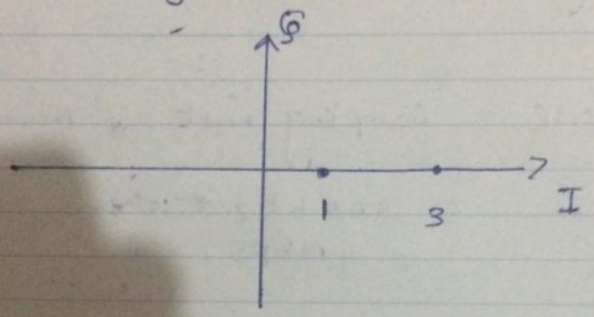
6) 1000110



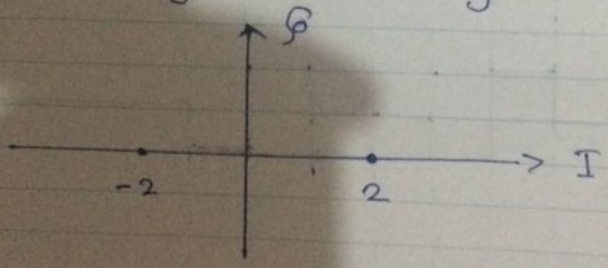
Question 2

7)

a) Two peak amplitude values 1 and 3 Also Phase is same of both Single elements assume 0 degrees



b) One peak Amplitude value 2 But there are 180-degree difference between two phases assume 0 degree to 180 degree



Quection3

1).

- Airtel (Sri Lanka)
- Dialog Axiata
- Etisalat (Sri Lanka)
- Hutch (Sri Lanka)
- Lanka Bell
- Mobitel (Sri Lanka)
- Sri Lanka Telecom

2).

5G faster than 4G

- With 5G at 10 gigabits per second, up to 100 times faster than 4G, 5G networks can deliver the level of performance required by an increasingly connected community.

5G Latency lower than 4G

- Better performance with 5G also means the time between sending and receiving information is lower .
  For 4G that's 200 milliseconds, not far from the 250 milliseconds it takes for people to respond to visual stimuli. 5G latency is significantly lower - just 1 millisecond.

Network slicing easier when it comes to 5G

- Implementing 5G can solve this problem, as network sharing becomes much easier as the network is divided to account for speed, capacity, coverage, encryption, and security when redistributing resources from one part of the network to another part '' whatever is necessary.

3).

Cloud computing is the platform of various services over the Internet. These resources include tools and applications such as storage , servers, databases, networking, and software. Instead of storing files on your own hard drive or a local storage device, they can be stored in an external database with cloud storage. As long as an electronic device has access to the Internet, it can access the data and the software to run it.Cloud computing is a popular choice for

individuals and businesses for a variety of reasons, , increased productivity, including cost saving ,speed and efficiency, security and performance.

4).

- Television and Radio Broadcasting
- Radio Frequency Identification (RFID)
- Satellite Communication
- Mobile Telephone System (Cellular Communication)
- Radar
- Infrared Communication
- Global Positioning System (GPS)
- WLAN (Wi-Fi)
- Paging
- Bluetooth
- Cordless Phones

5).

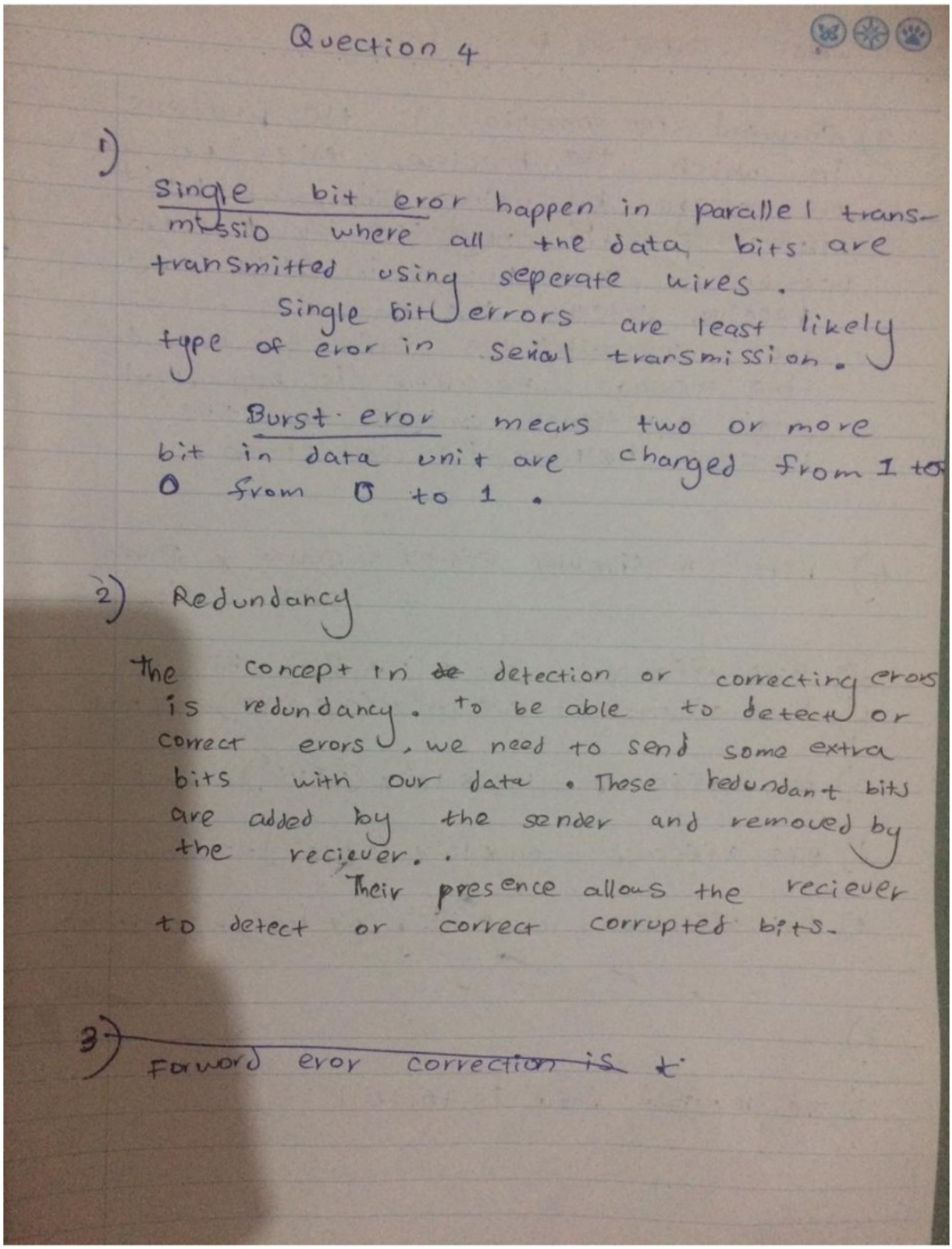
Reliability of Network

- The WAN provides consistent coverage and speed under all circumstances, but network security fluctuates more in response to certain variables. These variables are difficult to control and even more difficult to eliminate completely.

Less Security

- The WAN can be vulnerable to cybercriminals looking for potential vulnerabilities. WANs can be exploited by anyone who can overcome their security layer.

Quection4



Quection 4

1)

Single bit eror happen in parallel transmissio where all the data bits are transmitted using seperate wires.

Single bit errors are least likely type of eror in serial trarsmission.

Burst eror means two or more bit in data unit are charged from 1 to 0 from 0 to 1.

2) Redundancy

The concept in de detection or correcting erors is redundancy. to be able to detect or correct erors, we need to send some extra bits with our data. These redundant bits are added by the sender and removed by the recieuer.

Their presence allows the recieuer to detect or correct corrupted bits.

3) ~~Forword eror correction is~~ t

Question 4

3) Forward eror correction is the process in which the reciever tries to guess the message by using redundant bits. correction by retransmission is a techniquer in which the receiver detects the occurence of an eror and asks the sender to resend the message . resending is repeated until a message arrives that the Reciever believes is eror - free.

4) bits maximum effect = Data rate * Burst time

a) Bits affected = $1500 * (2 * 10^{-3}) = 3$ bits

b) Bits affeated = $12 * 10^{3} * (2 * 10^{-3}) = 24$ bits

c) Bits affected = $100 * 10^{3} * (2 * 10^{-3}) = 200$ bits

d) Bits affected = $100 * 10^{6} * (2 * 10^{-3}) = 200000$ bits

e) Bits affected = $1000 * 10^{6} * (2 * 10^{-3}) = 2000000$ bits

5)

a) The received data is 1011011

Question 4

B)

Network ID	Subnet mask	Host ID Range	No of usable host	Broadcast ID
194.248.4.0	/26	194.248.4.1 - 194.248.4.62	62	194.248.4.63
194.248.4.64	/26	194.248.4.65 - 194.248.4.126	62	194.248.4.127
194.248.4.128	/26	194.248.4.129 - 194.248.4.190	62	194.248.4.191
194.248.4.192	/26	194.248.4.193 - 194.248.4.254	62	194.248.4.255

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Article Error You may need to use an article before this word.

P/V You have used the passive voice in this sentence. You may want to revise it using the active voi

Article Error You may need to use an article before this word.

P/V You have used the passive voice in this sentence. You may want to revise it using the active voi

Frag. This sentence may be a fragment or may have incorrect punctuation. Proofread the sentence be sure that it has correct punctuation and that it has an independent clause with a complete subject and predicate.

Sentence Cap. Review the rules for capitalization.

Sentence Cap. Review the rules for capitalization.

Sentence Cap. Review the rules for capitalization.

Article Error You may need to use an article before this word. Consider using the article **the**.

Article Error You may need to use an article before this word. Consider using the article **the**.

Sentence Cap. Review the rules for capitalization.

Frag. This sentence may be a fragment or may have incorrect punctuation. Proofread the sentence be sure that it has correct punctuation and that it has an independent clause with a complete subject and predicate.

Confused You have used either an imprecise word or an incorrect word.

Article Error You may need to remove this article.

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Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

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Frag. This sentence may be a fragment or may have incorrect punctuation. Proofread the sentence be sure that it has correct punctuation and that it has an independent clause with a complete subject and predicate.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Article Error You may need to remove this article.

Article Error You may need to use an article before this word.

PAGE 9

Article Error You may need to use an article before this word. Consider using the article **the**.

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