Name ≠ Asad Shoaib Khalil

ID ≠ 13095

Subject ≠ Computer Communication Network

Teacher ≠ Engr. Muhammad Waqas

Paper ≠ Computer Communication System

Date ≠ 20/8/20

Question #1.

Part (a).

Answer #1.

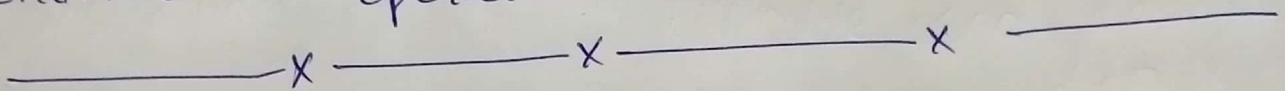
Ethernet is used in a LAN - Local Area Networks & has a limit to the length of cable used. Wireless network is also consider a LAN. You connection to you ISP, however would be considered part of a MAN.

MAN - Metropolitan Area Network - is used in cities & towns & uses fiber optics, coax cables, Telephone wires (DSL) and in some cases, Wireless.

WAN - Wide Area Network - covers everything beyond & is essentially the Internet for most of us but could be also include private network that corporations & governments use. Fiber optics, satellite and possibly micro-wave transmission along with coax cables are used to support WAN connection.

"Answer #2"

*) In a ring topology, unplugging one station interrupts the ring. However most ring networks uses a mechanism that Bypasses the station. the ring can continue its operation



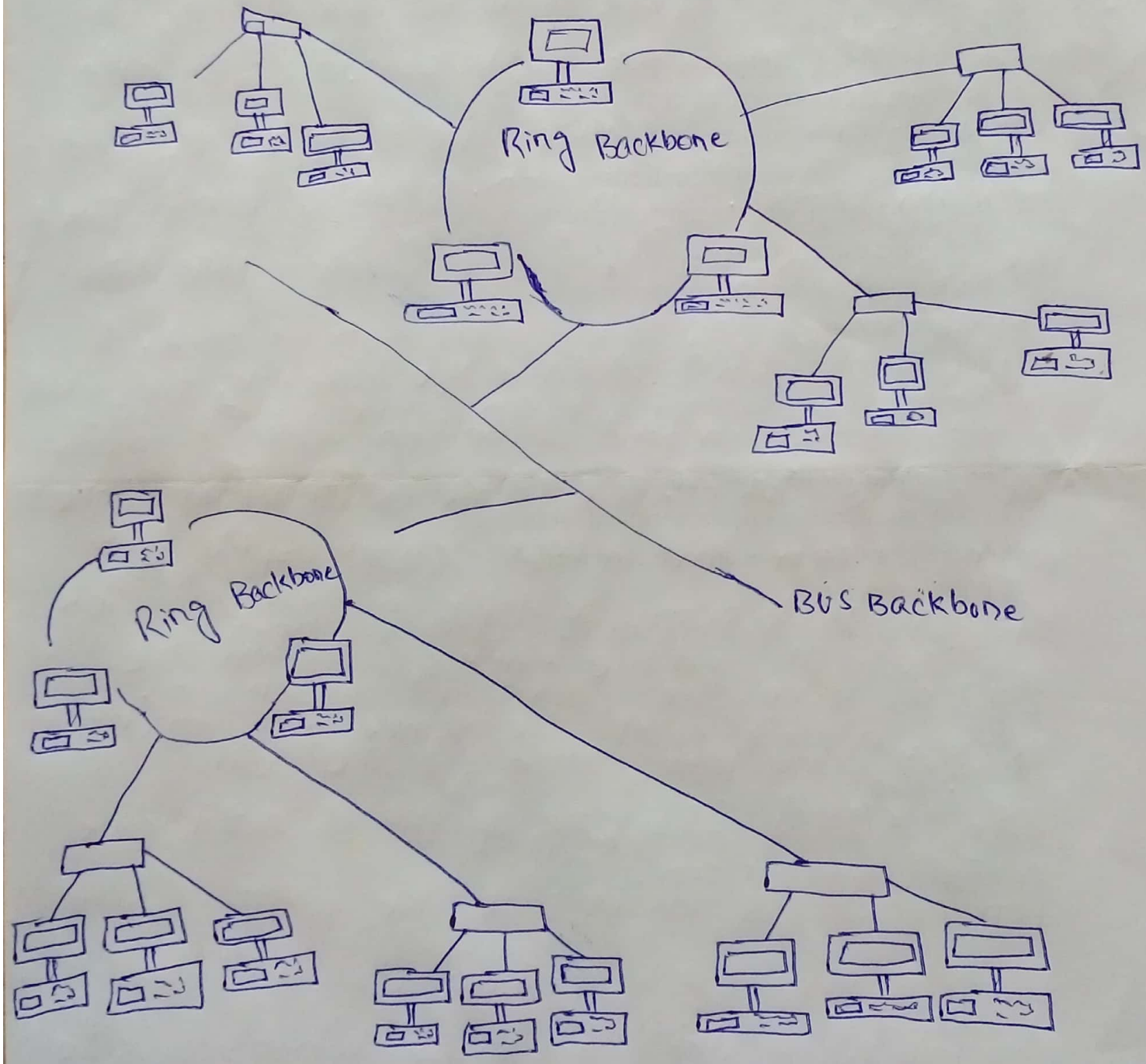
"Answer # 3"

(*) In a bus topology, no station is in the path of the signal. Unplugging a station has no effect on the operation of the rest of the network.

Question # 1

Part (a)

Answer # 4.



Question # 2.

Part (a).

Answer # 1.

*) Additional information wrapped with the data unit at each layer. Usually, a trailer is added at data link layer. Header & trailer contain informatn such as source/destination address, control bits, error corrections bits etc. These extra bits are added at the layer at senders side, & removed at the corresponding layer at receiver's side.

— X ——— X ——— X ———

Answer # 2.

*) Port address – transport layer, logical address – network layer, physical address – data link & physical layer. Port address is the address of a process on a host. A logical address (IP) in the internet is currently a 32 bits address that can uniquely define a host connected to the internet. Physical address is address of node as defined by its LAN or WAN.

Q2 → "Answer #3".

*) The TCPIIP protocol suite was developed prior to the OSI model. Therefore, the layers in the TCP/IP protocol suite do not exactly match those in the OSI model. The orginal TCP/IP protocol suite was define as having four layers: host-to-network, internet transport and application. However, when TCP/IP is compared to OSI, we can say that the host-to-network layer is equilent to the combination of physical & data link layer. The internet layer is equilent to the network layer, and the application layer is roughly doing the job of session, presentation. & application layer with the transport layer in TCP/IP taking care of part of the duties of the session layer. We assume that the TCP/IP protocol suite is made of five layers physical standards network, transport & application. The first four layer provide physical standards, networks interfaces internet working, and transport functions that correspond to the first four layers of the OSI model. The Three topmost layer in the OSI model, however, are represented in TCP/IP by a single layer called the application.

Q#2 ⇒ Part(a) ⇒ "Answer #4."

*) Match the following.

(a) Reliable process-to-process message delivery:
Ans: (transport layer)

(b) Route selection:-
Ans: (Network layer)

(C) Defines frames:-
Ans: (Data Link layer)

(d) Provide users service such as email & file transfer
Ans: (Application layer)

(e) transmission of bit stream accross physical medium.
Ans: (physical layer)

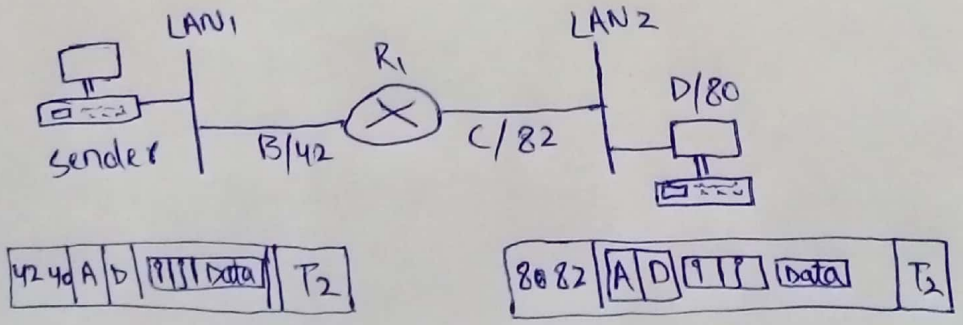
Question # 3.

Part (a)

Answer:-

*) Suppose a computer sends a frame to another computer on a bus topology LAN. The physical destinition address of the frame is corrupted during the transmission. What happen to the frame? How can the sender be informed about the situation?

If the corrupted distinition address does not match any station address in the network, the packet is lost. If the corrupted destination addresses matches one of the stations, the frame is delivered to the wrong station. In this case however, the error detection mechanism, available in most data link protocols, will find the error & discard the frame. In both cases, the source will somehow be informed using one of the data link control mechanism.



Question # 3.
Part (b).
Answer:-

*) In general if there is a problem in a network bad enough to corrupt a packet at the transport layer 2 level, then the sender's address is also corrupt. This is because the way a CRC checksum works. When a packet arrives malformed the checksum just tells the receiver the data is garbage and the packet gets tossed. There is no way for an intermediate router to figure out the sender's address at this point because the entire packet with both the sender's & receivers address cannot be trusted, hence the packet is thrown out. Another commenter pointed out, TCP will retry based on the fact it did not receive an (ACK), but this is just like waiting for a bus that does not show up and calling an uber, you will never know what happened to the bus.