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| Military college of signals |
| Computer Networks |
| LAB 1 |
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| **Submitted By:** GC Shehryar Sajid  **Instructor:** LD Kabeer  **Dated:** 17th Sep 2012 |

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Question 1:

“If one node in bus topology breaks down why would the whole network fail?”

# Solution:

When a node break down this means that there is no more signal termination at that end of the wire. The network behaves as if one end of the bus is left open without being connected to any terminator. So during data transmission through that network wire the signal bounces back and produces echo in the bus. This is called ringing. Hence data communication through the network media fails. Similarly find this kind of fault in the network is very hectic job and time consuming.

Question 2:

“Enlist & Describe Physical Layer Devices”

# Solution:

Following are the devices which are used at the physical layer:

1. **Network adapter**

A network interface controller or network adapter or LAN adapter is a computer hardware component that connects a computer to a computer network. The network controller implements the electronic circuitry required to communicate using a specific physical layer and data link layer standard such as Ethernet, Wi-Fi or Token Ring.

1. **Repeater**

A repeater is an [electronic](http://en.wikipedia.org/wiki/Electronics) device that receives a [signal](http://en.wikipedia.org/wiki/Signal_(information_theory)) and [retransmits](http://en.wikipedia.org/wiki/Retransmit) it at a higher level or higher power, or onto the other side of an obstruction, so that the signal can cover longer distances.

1. **Network hub**

An Ethernet hub or network hub is a device for connecting multiple [Ethernet](http://en.wikipedia.org/wiki/Ethernet) devices together and making them act as a single [network segment](http://en.wikipedia.org/wiki/Network_segment). It has multiple [input/output](http://en.wikipedia.org/wiki/Input/output) (I/O) ports, in which a [signal](http://en.wikipedia.org/wiki/Signalling_(telecommunication)) introduced at the input of any [port](http://en.wikipedia.org/wiki/Computer_port_(hardware)) appears at the output of every port except the original incoming.

1. **Modem**

A modem (*modulator-demodulator*) is a device that modulates an [analog carrier signal](http://en.wikipedia.org/wiki/Analog_signal) to encode [digital information](http://en.wikipedia.org/wiki/Digital_information), and also demodulates such a carrier signal to decode the transmitted information. The goal is to produce a [signal](http://en.wikipedia.org/wiki/Signal_(electronics)) that can be transmitted easily and decoded to reproduce the original digital data. These signals can be transmitted over [telephone lines](http://en.wikipedia.org/wiki/Telephone_lines) and demodulated by another modem at the receiver side to recover the digital data.

1. **Fiber Media Converter**

A fiber media converter is a simple [networking](http://en.wikipedia.org/wiki/Computer_Network) device that makes it possible to connect two dissimilar media types such as twisted pair with [fiber optic cabling](http://en.wikipedia.org/wiki/Optical_fiber). They were introduced to the industry nearly two decades ago, and are important in interconnecting fiber optic cabling-based systems with existing copper-based, [structured cabling](http://en.wikipedia.org/wiki/Structured_cabling) systems. They are also used in [MAN](http://en.wikipedia.org/wiki/Metropolitan_area_network) access and data transport services to [enterprise](http://en.wikipedia.org/wiki/Enterprise_architecture) customers.

1. **Network Cable and Connectors**

Network Cable is the media used for transferring data through the network. It can be coaxial cable, twisted pair, fiber optics, stp, utp etc. The clips/plugs that are attached at the end of network cable to connect the cable into network adapter examples include RJ 45, RJ 11 etc.