Q 1=What is Bluetooth?

ANS=Bluetooth is a wireless technology standard used to exchange data over short distances. The data is exchanged from fixed and mobile devices by creating Personal Area Network with security at high level. Bluetooth was originally conceived as a wireless alternate to RS-232 cables. It resolves the problems synchronization by connecting several devices.

## Q 2= Bluetooth as a cable replacement technology explain?

## ANS=Blue tooth allows Personal Area Networks without the cables. It provides connectivity to many mobiles users at a time for sharing without wires. Blue tooth chip is designed for replacing cables by transmitting the information at a special frequency from sender to receiver.

#### Q 3=Explain the working of trace route?

ANS=Trace route works by increasing the time-to-live value of every successive packets sent in batch. Every three packets that were sent first, have a time-to-live value 1. The next three packets have a TTL value of 2 and so on. The host decrements the TTL value by one and the packet is forwarded to the next host, when a packet passes through a host.

When a packet (with a time-to-live value of 1) reaches a host, the packets will be discarded by the host, and an ICMP time exceeded packet is sent to the sender. A list of hosts, whose packets have traversed enrouted to the destination, is utilized by the trace route utility.

#### **Q 4=What is Piconet?**

ANS=Piconet is an ad-hoc network by linking a group of users which uses blue tooth technology protocols for allowing one ‘master’ device to interconnect with up to seven active ‘slave’ devices. Further, up to 255 slave devices could be inactive or packed and the master device can bring into active status at any given point of time.

The range of Piconet will vary based on the blue tooth device class. The data transfer rate varies around 200 to 2100 KB/S, depending upon the synchronous or asynchronous connection usage, and the number of devices connected in the piconet.

#### **Q 5=Explain the following terms: ICMP, ARP, Multicast, Broadcast?**

ANS=Internet Control Message Protocol: This protocol is used for while checking the connectivity using ping command

Address Resolution Protocol: This protocol is used to know about the properties of TCP/IP. For example, to know other system MAC addresses.

Multicast: Communication between single sender and a list of select recipients in a network.

Broadcast: To send messages to all the recipients simultaneously in a network.

#### **Q 6 Which technology is used to avoid interference in Bluetooth? Brief the technology used?**

ANS=Blue tooth uses frequency hopping technology. In this technology, 79 hop frequencies are transmitted and received from 2402 to 2480 mhz. hopping in a pseudo random sequence at a rate of 1600 times in a second. Guassian frequency shift keying modulation is utilized with a maximum data transfer rate of 721 kbps. Bluetooth protocol stack is developed and TCP/IP imported layers are used in this technology.

Interference is being avoided by utilizing the frequency-hop(FH) spread spectrum technology. It is adaptable for low-power, low-cost radio implementations and also used in certain wireless LAN products.

The major advantage with this technology transmission is the high rate of 1600 hops / ps. Another advantage is, short packet length is also used by Bluetooth.

#### **Q 7=Explain the term 'Airport' in Bluetooth?**

ANS=Airport is standard (802.11) and has a faster transfer rate. Technologically it is more advanced, more rugged and smaller and capable of being used anywhere. It is 10mb/sec, 50 meters, 10 active devices. Apparently, Bluetooth is 1mb/sec, 10 meters and 7 active devices.

#### **Q 8=What FEC means in Bluetooth?**

ANS=FEC stands for Forward Error Correction. On the data payload, FEC reducing the number of retransmissions. Within blue tooth, there are 2 versions namely, 1/3 FEC and 2/3 FEC. The 1/3 version is 3 times repetition of each information bit. The 2/3 version is a shortened Hamming code.

**Q 9=How frequency hopping is used for security in Bluetooth?**

Ans=Blue tooth technology uses Adaptive Frequency Hopping and capable to reduce interference between wireless technologies with the help of 2.4 GHz spectrum. In order to take the advantage of the available frequency, Blue tooth’s AFH works within the spectrum and is performed by the technology detecting other devices in the spectrum and avoiding the used frequencies. Efficient transmission within the spectrum at high degree of interference immunity is achieved by adapting hopping among 79 frequencies at 1 MHz intervals.

Q 10=Explain how data is transferred through Bluetooth.?

**ANS=**The PSI line blue tooth interface converters are used making complex data connections with mobile devices with the utilization of flexible conduits, slip rings and other traditional cable solutions.

The universal PSI line interface makes it possible to transmit wireless transmission of the interfaces such as RS-232, RS-422, RS-485 wire and USB.

**Q 11=Define the term 'Pairing' in Bluetooth?**

ANS=Pairing is the term that occurs at the point when 2 Bluetooth devices communicate with each other by establishing a connection. A passkey needs to be exchanged between two devices in order to perform pairing.

**Q 12=Explain the term Bluetooth SIG?**

ANS=Bluetooth Special Interest Group is a non-profit trade association. It does not make, sell the Bluetooth enabled products. The group is a set of enterprises that are engaged in telecommunications, computing, music, apparel, automotive, network and industrial automation industries. The development of the Bluetooth wireless technology is driven by SIG members and implement, market the technologies in the products. Publishing Bluetooth specifications, administering the qualification program, protecting the Bluetooth trademarks and evangelizing Bluetooth wireless technology are the major tasks that are driven by Bluetooth SIG.

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