

19. It consists of multiple protocols that provide Internet access to mobile users of wireless phones and other wireless devices.

- A Web Protocol Stack
 B Wireless Mark-up Language
 C Wireless Application Protocol
 D. Wireless Software Protocol

Answers:

| | | | |
|-----|-------------------------------|-----|---------------------------|
| 1. | Wireless communication | 2. | Radio signal |
| 3. | Two | 4. | Transmitter |
| 5. | Transceiver | 6. | 50 Km |
| 7. | 40 to 50 Km | 8. | MAN |
| 9. | City | 10. | Global Positioning system |
| 11. | Bluetooth | 12. | GEO |
| 13. | MEO | 14. | LEO |
| 15. | 160 km to 2,000 km | 16. | Web Protocol Stack |
| 17. | Wireless Mark-up Language | 18. | Wireless Mark-up Language |
| 19. | Wireless Application Protocol | | |

Q.2 Give short answers of the following questions.

Q1: Define wireless communication.

Ans. Wireless communication refers to technology that transmits information over short or long distance without using connecting wires. It is alternative to using network cables.

Q2: State the term "wireless".

Ans. The term wireless refers to the communication or transmission of information over a distance without requiring wires, cables or any other electrical conductors.

Q3: Name some important wireless technologies.

Ans. Some important wireless technologies are

- ⇒ Satellite
- ⇒ Microwave
- ⇒ Wi-Fi
- ⇒ Wi-MAX
- ⇒ Infra-red

Q4: Describe the function of wireless network.

Ans. A wireless network enables people to communicate and access applications and information without wires. This provides freedom of movement and the ability to extend locations to different parts of a building, city, or nearly anywhere in the world. Wireless works allow people to interact with e-mail or browse the Internet from a location the way they prefer.

Q5: Write down any three Advantages of Wireless Networks.

Ans.

1. Wireless networks can easily add users without having to change the physical connection.
2. Wireless networks provide robust security protections. Traffic of a wireless network can be filtered or simply blocked very easily.
3. Using wireless networks users are no longer tied to a specific location, as were with a wired connection. With a laptop computer or mobile device, access can be available at different locations.

Q6: Write any three Disadvantages of Wireless Networks.

Ans.

1. The main disadvantage of the wireless network is security breach. Intruders (hackers) can tap into a wireless network relatively easier than a wired network.
2. Another disadvantage is about its coverage that somewhere users might face problems of range of signals.

3. Sometimes wireless networks speed can be slower than wired networks because of the low signals.

Q7: Define radio signal.

Ans. A radio signal or radio wave is an electromagnetic wave propagated by an antenna. Radio waves have different frequencies and tuning a radio receiver to a specific frequency you can pick up a specific radio signal

Q8: Name the Parts of Radio Frequency Systems.

Ans. All the Radio Frequency (RF) systems consist of two components:

- ⇒ Transmitter
- ⇒ Receiver

Q9: How do radio frequency systems work?

Ans. A transmitter transmits a radio signal to a receiver, which listens for the signal and receives it. RF systems include a set of rules that define how the transmitter and receiver communicate. For example, a rule set can specify that the transmitter must communicate with the receiver at a specific frequency. Early radio signals were analogue but today most of the radio signals are digital.

Q10: Define radio transceiver.

Ans. A transceiver is a device, which can transmit and receive a radio signal and have a common circuitry in a single housing

Q11: What is meant WAP?

Ans. WAP stands for Wireless Access Point (WAP). WAP is a device that allows wireless devices to connect to a wired network using Wi-Fi. The access point connects to the wired network and then broadcasts signals wirelessly to all the other wireless devices such as laptop computers as shown in Fig 6.3

Q12: Where line of sight is used?

Ans. Line of sight communication is used in high frequency communication where the signals cannot pass through structures and hills. For long distance communication, transmitters are installed on high buildings, mountaintops or high towers. Relay stations (boosters) are used to amplify the signals and retransmit from station to station.

Q13: What is meant by short distance wireless communication?

Ans. Short distance wireless communication consists of very short distance of few meters (Infra-red) to a distance of up to 50 Km (Wi-Max).

Q14: Name the types of short distance wireless communications.

Ans. Following are the types of short distance wireless communications:

- ⇒ Wi-Fi
- ⇒ Wi-Max
- ⇒ Bluetooth
- ⇒ Infra-red

Q15: What is meant by long distance wireless communication?

Ans. Long distance wireless communication comprises of distances above 50 Km using either cellular communication methods or Global Positioning Systems, which utilizes satellites.

Q16: Write a short note on Wi-Max.

Ans. Wi-Max (Worldwide Interoperability for Microwave Access) is a wireless network that provides public network service to users. It covers a big range of 40 to 50 Km. Wi-Max creates a Metropolitan Area Network and provides a wireless alternative to Cable TV and DSL Internet connection. It provides service just about anywhere you go within a city. It transmits information through microwave and uses a more complex technology than Wi-Fi.

Q17: Write a short note on Bluetooth.

Ans. Bluetooth is a short-range and low speed wireless communication technology. Its range is around 10 meters with the data transfer rate up to 723 Kbps and it consumes low power. It provides a way to connect and exchange information between devices such as mobile phones, laptop

computers, PCs, printers, digital cameras, and video game consoles.

Q18: What are infra-red rays?

Ans. Infra-red (IR) waves are extremely high frequency waves which are used for short range communication.

Q19: Write down some common applications of infra-red technology.

Ans. Some common applications of infra-red technology are listed below.

1. Car locking systems use Infra-red technology for automatic locking and unlocking the doors of cars.
2. Modern Computers have infra-red enabled mouse, keyboards, and printers.
3. Home security systems have infra-red enabled burglar alarm system.
4. Remote control system in TVs, Toys, etc. uses infra-red technology.

Q20: Which service is provided by long distance wireless communications?

Ans. Long Distance wireless communication systems provide services that are not possible with the use of cables. It includes cellular and global positioning systems.

Q21: State the term "Cellular Communication".

Ans. Cellular communication refers to wireless communication systems that divide a geographical region into sections called cells. Each cell has a Base Station (BS) at the center but contains a transceiver and controller that provides radio communication to mobile phones.

Q22: Define base station.

Ans. In cellular communication, each mobile phone uses a separate temporary radio frequency (channel) to talk to the Base Station (BS). The BS talks to many mobile users at the same time.

Q23: What is the basic concept of cellular communication?

Ans. The basic concept of cellular communication is that it reuses the radio frequency by the cell that are at a distance where there is no interference of the other.

Q24: Define GPS.

Ans. Global Positioning System (GPS) is a radio navigation system that allows people on land, in sea or in the air to determine their exact position, 24 hours a day anywhere in the world in all weather conditions.

Q25: Write down the uses of GPS.

Ans. GPS are used for navigation, on airplanes, ships, ground vehicles, and by individuals. Also the relative positioning and time data is used to study the movement of tectonic plates to understand the earthquakes, astronomical observations, telecommunications, etc..

Q26: Define satellite.

Ans. A satellite is a relay station, which is placed into orbit by humans.

Q27: State the uses of satellites.

Ans. Satellites are used for various purposes such as military and civilian earth observation satellites, communications satellites, navigation satellites, weather satellites, and research satellites. The orbits used by the satellites may be defined as Geostationary Earth Orbit, Medium Earth Orbit or Low Earth Orbit.

Q28: Into how many types, satellite systems can be classified?

Ans. Satellite Systems can be classified based upon their orbits into the following three types:

- ⇒ Geostationary Earth Orbit (GEO)
- ⇒ Medium Earth Orbit (MEO)
- ⇒ Low Earth Orbit (LEO)

Q29: Define mobile communication.

Ans. Mobile communication involves the use of mobile devices such as mobile phones, smart phones, PDAs and laptop and tablet computers. Mobile communication devices give the freedom to communicate with others or access information everywhere. These devices improve our efficiency and productivity.

Q30: Which components are required for mobile communications?

Ans. The following are the components required for mobile communications:

- ⇒ Mobile phone
- ⇒ Base station
- ⇒ Switching node
- ⇒ Landline telephone network

Q31: What is considered a mobile device?

Ans. Mobile phone is a device that allows making and receiving calls over a cellular network.

Q32: Define switching node.

Ans. Switching node is a component of cellular network that carries out switching and mobility management functions for mobile phones on network of base station.

Q33: Write down any two features of mobile communication systems.

Ans.

1. Mobile Internet users' copy and paste information from Web sites without the permission of publisher and this is violations of property rights.
2. Daily use of mobile computing devices will eventually make people more dependent on them instead of relying on their own potentials.

Q34: Write down any two limitations of mobile communication systems.

Ans.

1. Wireless mobile communication has the limitation of low processing capability, high error rate and low storage availability.
2. Handheld mobile devices have the limitations of small display, low memory, limited battery power and limited CPU power.

Q35: Which capabilities are included in mobile device communication?

Ans. The Mobile Device Communication Architecture includes the following wireless data communication capabilities

- ⇒ Web Protocol Stack
- ⇒ Wireless Mark-up Language (WML)
- ⇒ Wireless Application Protocol (WAP)

Q36: What is meant by Web Protocol Stack?

Ans. Web Protocol Stack consists of TCP/IP and HTTP. Its purpose is to allow two computers to communicate with each other over the Internet. When a message is sent over Internet, it is translated from text form to electronic signals at the source computer and then translated back to text form at the destination computer. Every computer needs protocol stack to communicate over the Internet and it is usually built in the operating system such as Windows. The protocol stack used for the Internet is known as TCP/IP protocol stack.

Q37: What is meant by Wireless Mark-up Language?

Ans. Wireless Mark-up Language is based on HTML and XML and it delivers Internet contents to small wireless devices, such as browser-equipped mobile phones and other handheld devices. These devices have very small displays, slow CPUs, limited memory capacity, low bandwidth and restricted user-input capabilities. WML demands less memory and processing power from browsers than HTML. WML also includes features that support relatively small display sizes of today's wireless devices.

Q38: What is meant by Wireless Application Protocol?

Ans. WAP consists of multiple protocols that provide Internet access to mobile users of wireless phones and other wireless devices such as pagers and personal digital assistants (PDAs). Today, it has become the standard for providing data and voice services to wireless hand-held devices.



