Objective type

Questions

On

Wireless and Adhoc Networks

UNIT WISE OBJECTIVE TYPE QUESTIONS

UNIT-I: Introduction: Radio Propagation Mechanisms, Characteristics of the Wireless Channel, Modulation Techniques, Multiple Access Techniques, Voice Coding, Computer Network Architecture, IEEE 802 Networking Standards, Wireless Network.

Sky wave propagation reflects the frequencies _____
a) 2MHz
b) 2 MHz to 30MHz
c) 2 GHz to 30 GHz
d) 30 GHz to 50GHz
Answer: b

Communication through LOS can be increased by decreasing the height of antenna.
a) True
b) False
Answer: b

Space wave propagates at which frequency band?
a) VHF
b) HF
c) MF
d) EHF
Answer: a

What is wireless communication?
a) Sending data from one location to with the use of physical medium
b) Sending data from one location to another without the use of physical medium
c) Sending data from one location to another without the use of virtual medium
d) None of the mentioned
Answer: b

What is Mobile communication?
a) Allows to communicate from different locations without the use of physical medium
b) Allows to communicate from different locations with the use of physical medium
c) Allows to communicate from same locations without the use of physical medium
d) Allows to communicate from same locations with the use of physical medium
Answer: a

Which of the following is not an example of wireless communication?
a) Wi-Fi
b) Mobiles
c) Landline
d) Wireless Computer Parts
Answer: c

In ad hoc networks, modulation techniques are primarily used for:
 a. Routing data packets b. Modifying network topology c. Data encoding and transmission d. Security and encryption
Answer: c

Which of the following is an advantage of using spread spectrum modulation techniques in ad hoc networks?
a. High data rate transmission b. Improved resistance to interference and jamming
 c. Low power consumption d. Simple implementation
Answer: b

The main purpose of using adaptive modulation and coding (AMC) in ad hoc networks is to:
a. Maximize network coverage b. Minimize network latency
c. Optimize data rate and reliability based on channel conditions d. Enhance network security
Answer: C

Multiple access techniques in ad hoc networks are used for:
a. Secure data encryption b. Routing and forwarding data packets
c. Synchronization of network clocks d. Power management of nodes
Answer: b

Which of the following is a contention-based multiple access technique commonly used in ad hoc networks where nodes listen and transmit whenever they have data to send, potentially leading to collisions?
a. TDMA (Time Division Multiple Access) b. CDMA (Code Division Multiple Access) c. ALOHA
d. FDMA (Frequency Division Multiple Access)
Answer: C

In ad hoc networks, which multiple access technique is known for its ability to support multiple users simultaneously by assigning unique codes to each user's data? a. FDMA (Frequency Division Multiple Access) b. CDMA (Code Division Multiple Access) c. ALOHA d. CSMA/CA (Carrier Sense Multiple Access with Collision Avoidance
Answer: b

CSMA/CA (Carrier Sense Multiple Access with Collision Avoidance) is commonly used in ad hoc networks. What does the "CA" in CSMA/CA stand for?
a. Collision Avoidance b. Carrier Allocation c. Channel Assessment d. Collision Adaptation
Answer: A

Voice coding, also known as voice compression or voice encoding, in ad hoc networks primarily deals with:
a. Securing voice data b. Modulating voice signals
c. Reducing the size of voice data for efficient transmission d. Enhancing voice quality during transmission
Answer: C

Which of the following voice coding techniques is widely used for compressing voice data in ad hoc networks and is standardized for use in VoIP (Voice over IP) applications?
a. GSM (Global System for Mobile Communications) b. AMR (Adaptive Multi-Rate)
c. PCM (Pulse Code Modulation) d. DSSS (Direct Sequence Spread Spectrum)
Answer: B

The main advantage of using voice coding in ad hoc networks is:
a. Increasing network security b. Reducing network latency
c. Efficient utilization of network bandwidth d. Enhancing node mobility
Answer: C

In a client-server network architecture, the role of the client is to:
a. Provide services to other clients b. Request and consume services from the server
c. Manage network resources d. Facilitate communication between servers
Answer: B

Which network architecture is characterized by interconnected devices where each device can
communicate directly with any other device without the need for a central access point or router?
a. Client-Server Architecture b. Peer-to-Peer (P2P) Architecture
c. Hierarchical Architecture d. Distributed Architecture
Answer: B

Which network architecture is commonly used in cloud computing environments, where resources are
dynamically allocated and scaled based on demand?
a. Peer-to-Peer (P2P) Architecture b. Distributed Architecture
c. Virtualized Architecture d. Hierarchical Architecture
Answer: C

IEEE 802.11 is a standard for:
a. Ethernet LANs b. Wi-Fi wireless LANs c. Token Ring LANs d. Bluetooth networks
Answer: B

Which IEEE 802 standard defines the Ethernet protocol for wired local area networks (LANs)?
a. IEEE 802.1Q b. IEEE 802.11 c. IEEE 802.3 d. IEEE 802.15
Answer: C

The IEEE 802.11 standard is commonly known as:
a. Bluetooth b. Wi-Fi c. Zigbee d. NFC
Answer: B

The cellular concept in mobile communication is based on the idea of dividing a geographical area into smaller regions called _____.
a. Cells b. Towers c. Sectors d. Nodes
Answer: A

In a cellular network, each cell is typically served by a central base station, also known as a _____.
a. Mobile Switching Center (MSC) b. Mobile Node (MN) c. Cell Controller (CC) d. Cell Site (CS)
Answer: C

Which cellular network generation introduced digital voice communication and significantly improved the efficiency of mobile communication?
a. 1G (First Generation) b. 2G (Second Generation) c. 3G (Third Generation) d. 4G (Fourth Generation)

Answer: B

In a cellular network, the process of allocating a specific frequency band to a cell is known as _____.

 a. Frequency Hopping b. Spectrum Scanning c. Frequency Assignment d. Frequency Switching
Answer: C

The area covered by a single cell in a cellular network is determined by:
a. The number of subscribers in the area b. The power of the base station
c. The cell's capacity for data transmission d. The cell's geographical location
Answer: B

In cellular network architecture, what is the primary purpose of a base station (BS) or cell site?
a. To provide voice and data services to mobile devices
b. To process billing information for subscribers
c. To manage network routing and switching
d. To regulate the frequency spectrum usage
Answer: A

The first-generation (1G) cellular systems were primarily analog-based. Which of the following 1G systems was the first to be deployed in the United States?
a. AMPS (Advanced Mobile Phone System) b. NMT (Nordic Mobile Telephone)
c. TACS (Total Access Communication System) d. C-Netz (C Network)
Answer: A

In 1G cellular systems, the primary method of modulation used for voice transmission was:
a. Frequency Modulation (FM) b. Amplitude Modulation (AM)
c. Time Division Multiplexing (TDM) d. Code Division Multiple Access (CDMA)
Answer: A

The first-generation cellular systems were primarily designed for:
a. Voice communication b. High-speed data transmission c. Video streaming d. Digital data exchange
Answer: A

The transition from 1G to 2G cellular systems introduced which significant improvement in wireless communication?
a. Digital voice transmission b. Increased coverage area
c. Wider frequency spectrum usage d. Mobile data services
Answer: A

Which of the following is a widely used second-generation (2G) cellular technology that was developed as a digital replacement for analog cellular systems? a. AMPS (Advanced Mobile Phone System) b. GSM (Global System for Mobile Communications) c. CDMA (Code Division Multiple Access)
d. NMT (Nordic Mobile Telephone)
Answer: B

The GSM (Global System for Mobile Communications) 2G standard uses which type of multiple access technique for managing multiple users in the same frequency band? a. Frequency Division Multiple Access (FDMA) b. Time Division Multiple Access (TDMA) c. Code Division Multiple Access (CDMA)
d. Space Division Multiple Access (SDMA)
Answer: B

Which technology is considered a key component of 3G cellular systems, providing high-speed data transmission and improved voice quality?
a. GSM (Global System for Mobile Communications) b. CDMA (Code Division Multiple Access)
c. WCDMA (Wideband Code Division Multiple Access) d. TDMA (Time Division Multiple Access)
Answer: C

In 3G cellular networks, what technology allows for the simultaneous transmission of voice and data over the same channel?
a. TDMA (Time Division Multiple Access) b. FDMA (Frequency Division Multiple Access) c. CDMA (Code Division Multiple Access) d. OFDMA (Orthogonal Frequency Division Multiple Access)
Answer: C

What technology was introduced in 3G systems to provide a smooth transition between different network types, such as 2G and 3G? a. Handover b. Roaming c. CDMA d. WAP (Wireless Application Protocol)
Answer: A

What is the primary purpose of Wireless in Local Loop (WiLL) technology?
a. To provide long-range Wi-Fi coverage b. To connect wireless devices to the internet
c. To replace traditional wired telephone connections with wireless links
Answer: C

Which wireless technology is commonly used for WiLL applications to provide voice and data services?
a. Wi-Fi b. Bluetooth c. WiMAX d. Zigbee
Answer: C

Which of the following is NOT a common application of WiLL technology?
a. Rural broadband access b. Last-mile connectivity for businesses
c. Satellite-based communication d. Replacement of traditional landline telephones
Answer: C

What does the acronym "WiMAX" stand for in the context of wireless communication?
a. Wireless Maximum Bandwidth b. Wireless Metropolitan Area Network
c. Worldwide Interoperability for Microwave Access d. Wireless Media Access Exchange
Answer: C

The IEEE 802.16 standard, commonly referred to as WiMAX, is designed for providing:
a. Short-range wireless communication b. Long-range wireless communication
c. Indoor wireless communication d. Satellite-based communication
Answer: B

Which frequency bands are commonly used for WiMAX deployments?
a. 2.4 GHz and 5 GHz b. 900 MHz and 1800 MHz c. 20 GHz and 30 GHz d. 60 GHz and 90 GHz
Answer: A

Which of the following is a key feature of WiMAX technology that allows it to provide high data transfer rates over a wide area?
a. Line-of-sight (LOS) communication only b. Orthogonal Frequency Division Multiplexing (OFDM)
c. Low-frequency bands for signal propagation d. Narrow coverage area
Answer: B

What is wireless internet?
a. Internet access via satellite dishes b. Internet access without any physical cable connection
c. Internet access using only cellular networks d. Internet access with fiber-optic cables
Answer: B

Which wireless technology is commonly used to provide wireless internet access to smartphones, tablets, and laptops in public areas like coffee shops and airports?
a. WiMAX b. Bluetooth c. LTE d. Wi-Fi
Answer: D

What does the acronym "Wi-Fi" stand for?
a. Wireless Fidelity b. Wireless Fiber Optics c. Wide Area Network d. Wireless Frequency
Answer: A

Mobile IP is commonly used in which type of networks to support seamless mobility for devices like smartphones and tablets?
a. Ethernet LANs b. Public Wi-Fi networks c. Wired corporate networks d. Satellite networks
Answer: B

When a mobile device moves to a new network and obtains a temporary IP address, what is this temporary address called in Mobile IP?
a. Home Address (HoA) b. Care-of Address (CoA) c. Foreign Address (FA) d. Permanent Address (PA)
Answer: B

Which part of the Mobile IP protocol ensures that incoming packets are correctly delivered to a mobile device regardless of its current location?
a. Home Address (HoA) b. Care-of Address (CoA) c. Foreign Agent (FA) d. Home Agent (HA)
Answer: B

What is the primary purpose of Mobile IP in networking?
a. To provide mobile phone services over the internet b. To enable seamless mobility for devices while maintaining network connectivity c. To secure internet communications using encryption
d. To allocate IP addresses to mobile devices dynamically
Answer: B

Which aspect of wireless networks can lead to out-of-order packet delivery, impacting TCP's performance?
a. Low latency b. Packet reordering c. High bandwidth d. Strong encryption
Answer: B

Which mechanism in TCP allows it to adapt to varying network conditions and adjust its transmission rate accordingly?
a. Flow control b. Congestion control c. Error correction d. Rate adaptation
Answer: B

In a wireless network, what is the primary challenge that TCP faces when compared to wired networks?
a. Limited bandwidth b. Lower latency c. Greater reliability d. Unlimited mobility
Answer: A

What is the primary purpose of the Wireless Application Protocol (WAP)?
a. To provide wireless charging for mobile devices
b. To enable wireless networking using Wi-Fi technology
c. To facilitate access to internet content on mobile devices
d. To establish secure Bluetooth connections
Answer: C

WAP is a standardized protocol for:
a. Wireless network encryption b. Wireless application development
c. Wireless device charging d. Wireless spectrum allocation
Answer: B

Which layer of the OSI model does WAP primarily operate in?
a. Physical Layer b. Data Link Layer c. Network Layer d. Application Layer
Answer: D

WML (Wireless Markup Language) is a markup language used in conjunction with WAP. What is its primary purpose?
a. To encode wireless radio signals b. To create web pages optimized for mobile devices
c. To manage wireless network security d. To establish wireless network connections
Answer: B

Which wireless technology is commonly used in conjunction with WAP for data transmission?
a. Zigbee b. Bluetooth c. NFC (Near Field Communication) d. LTE (Long-Term Evolution)
Answer: B

What is the primary goal of optimizing web content for wireless networks?
a. Increasing power consumption on mobile devices b. Reducing data usage and load times
c. Maximizing the number of ads displayed d. Enhancing security for mobile users
Answer: B

Which technique helps reduce the number of HTTP requests when loading a web page on a mobile device?
a. Using larger images b. Combining multiple JavaScript files into one c. Embedding videos directly in the web page d. Increasing the number of external scripts
Answer: B

Which mechanism is used to address the "hidden terminal problem" in ad hoc wireless networks?
a. Carrier Sense Multiple Access (CSMA) b. Time Division Multiple Access (TDMA)
c. Frequency Division Multiple Access (FDMA) d. Power control algorithms
Answer: A

Which security issue is a concern in ad hoc wireless networks when nodes must rely on each other for routing and forwarding? a. Distributed Denial of Service (DDoS) attacks b. Eavesdropping and data interception c. Routing attacks and malicious nodes d. Insider threats
Answer: C

Which routing protocol is commonly used in ad hoc wireless networks to establish efficient routes between nodes?
a. RIP (Routing Information Protocol) b. OSPF (Open Shortest Path First) c. AODV (Ad Hoc On-Demand Distance Vector) d. BGP (Border Gateway Protocol)
Answer: C

In an Ad Hoc Wireless Internet network, how are devices typically connected to each other?
a. Through a central server b. Via wired Ethernet cables c. Directly to other devices in the network d. Through a public Wi-Fi hotspot
Answer: C

In an Ad Hoc Wireless Internet network, what is the term for a device that bridges the network to provide internet access to other devices? a. Access Point (AP) b. Router c. Gateway d. Modem
Answer: C

Which wireless standard is commonly used for creating Ad Hoc Wireless Internet networks with a focus on peer-to-peer communication?
a. 4G LTE b. IEEE 802.11 (Wi-Fi) c. NFC (Near Field Communication) d. CDMA (Code Division Multiple Access)
Answer: B

What is the primary application of Ad Hoc Wireless Internet networks?
a. Large-scale public internet access b. Short-range device communication c. Satellite-based internet services d. Wired network connections
Answer: B

What does "QoS" stand for in the context of networking?
a. Quick Online Services b. Quality of Service c. Quantitative Operating Standards d. Quota of Subscribers
Answer: B

In Ad Hoc Wireless Networks, what does QoS refer to?
a. Quantity of data transferred b. Quality of the wireless signal c. A set of service requirements to ensure acceptable network performance d. Quorum of subscribed users
Answer: C

Which of the following is a key challenge in providing QoS in Ad Hoc Wireless Networks?
a. Lack of available spectrum b. Overabundance of network resources c. Static network topology d. Homogeneous network devices
Answer: A

What is the primary goal of QoS in Ad Hoc Wireless Networks?
a. To prioritize voice traffic over data traffic b. To ensure all devices have equal access to network resources c. To maximize the data transfer rate at all times d. To minimize the number of network devices
Answer: A

Which of the following factors can affect QoS in Ad Hoc Wireless Networks?
a. Network topology changes b. Limited battery life in mobile devices c. Network congestion d. All of the above
Answer: D

Which QoS parameter is concerned with minimizing the delay between the transmission and reception of data packets?
a. Jitter b. Latency c. Throughput d. Packet loss
Answer: B

What is "jitter" in the context of QoS?
a. A sudden increase in network bandwidth b. The variation in packet delay
c. A measure of network congestion d. The maximum data transfer rate
Answer: B

In Ad Hoc Wireless Networks, what technology or mechanism can be used to improve QoS by dynamically prioritizing traffic?
a. Dynamic Frequency Selection (DFS) b. Quality of Service (QoS) protocols c. Antenna beamforming d. Ethernet cables
Answer: B

What is the primary goal of QoS solutions in networking?
a. Maximizing network bandwidth b. Minimizing latency
c. Ensuring fair access to network resources d. Providing secure authentication
Answer: C

Which of the following is NOT a common classification of QoS solutions?
a. Traffic shaping b. Traffic monitoring c. Traffic prioritization d. Traffic queuing
Answer: B

What QoS classification involves controlling the rate of data transmission to ensure that it conforms to predefined traffic profiles?
a. Traffic shaping b. Traffic monitoring c. Traffic prioritization d. Traffic queuing
Answer: A

In the context of QoS, what does "traffic monitoring" primarily entail?
a. Controlling the flow of data packets b. Analyzing network performance and traffic patterns c. Prioritizing data packets d. Allocating bandwidth based on user demand
Answer: B

Which QoS classification involves assigning different levels of importance or priority to different types of traffic?
a. Traffic shaping b. Traffic monitoring c. Traffic prioritization d. Traffic queuing
Answer: C

In QoS solutions, what is the purpose of "traffic queuing"?
a. Controlling the rate of data transmission b. Analyzing network performance
c. Buffering and scheduling data packets for transmission d. Assigning priority levels to data packets
Answer: C

Which QoS classification often uses token bucket algorithms and rate limiting to control traffic?
a. Traffic shaping b. Traffic monitoring c. Traffic prioritization d. Traffic queuing
Answer: A

What is a common technique used in QoS solutions to ensure that critical traffic, such as voice or video, gets higher priority than less time-sensitive traffic?
a. Network segmentation b. Quality of Service (QoS) policies c. Network address translation (NAT) d. Static IP addressing
Answer: B

What is the primary function of the MAC layer in the OSI model?
a. Routing data packets b. Ensuring end-to-end data delivery c. Managing physical transmission media access d. Encrypting data for secure transmission
Answer: C

Which of the following is NOT a common MAC layer protocol?
a. Ethernet b. Wi-Fi (IEEE 802.11) c. IP (Internet Protocol) d. Bluetooth
Answer: C

In Ethernet, what is the primary method used by devices to access the shared communication medium?
a. CSMA/CA (Carrier Sense Multiple Access with Collision Avoidance) b. TDMA (Time Division Multiple Access) c. CDMA (Code Division Multiple Access) d. FDMA (Frequency Division Multiple Access)
Answer: A

Which MAC layer protocol is commonly used for wireless LANs and provides features like contention-based access and association/disassociation mechanisms?
a. Ethernet b. Wi-Fi (IEEE 802.11) c. Bluetooth d. Token Ring
Answer: B

In Wi-Fi networks, what is the purpose of the Distributed Coordination Function (DCF) as part of the MAC protocol?
a. It coordinates network routing.
b. It ensures encryption of data packets.
c. It provides contention-based access to the wireless medium.
d. It assigns IP addresses to devices.
Answer: C

What MAC protocol is used in Bluetooth wireless technology to enable short-range, low-power device communication?
a. CSMA/CA (Carrier Sense Multiple Access with Collision Avoidance)
b. TDMA (Time Division Multiple Access)
c. CDMA (Code Division Multiple Access)
d. TDM (Time Division Multiplexing)
Answer: A

Which MAC layer solution is commonly used in satellite communication systems, where devices are synchronized to transmit and receive data at specific time slots?
a. TDMA (Time Division Multiple Access) b. CSMA/CA (Carrier Sense Multiple Access with Collision Avoidance) c. CDMA (Code Division Multiple Access) d. Ethernet
Answer: A

In a Token Ring network, what is the purpose of the token that circulates among devices?
a. To authenticate users b. To provide encryption for data packets
c. To grant permission for a device to transmit data d. To assign IP addresses to devices
Answer: C

What is the primary function of the network layer in the OSI model?
a. Physical data transmission b. Error detection and correction c. Logical addressing and routing d. Data link establishment and termination
Answer: C

Which network layer protocol is responsible for logical addressing and routing of data packets in the Internet?
a. IP (Internet Protocol) b. ICMP (Internet Control Message Protocol) c. ARP (Address Resolution Protocol) d. TCP (Transmission Control Protocol)
Answer: A

Which version of IP (Internet Protocol) is most commonly used for routing and addressing on the global Internet?
a. IPv2 b. IPv4 c. IPv6 d. ICMPv6
Answer: B

In IP routing, what is the purpose of the routing table?
a. To store physical MAC addresses b. To map domain names to IP addresses c. To maintain a list of open network ports d. To determine the next hop for forwarding data packets
Answer: D

Which network layer protocol is used for dynamically assigning IP addresses to devices on a local network?
a. DNS (Domain Name System) b. DHCP (Dynamic Host Configuration Protocol) c. ICMP d. OSPF (Open Shortest Path First)
Answer: B

What is the primary function of ICMP (Internet Control Message Protocol)?
a. To provide secure encryption of data packets b. To resolve domain names to IP addresses c. To diagnose network problems and report errors d. To establish and terminate TCP connections
Answer: C

Which network layer solution is responsible for translating logical IP addresses to physical MAC addresses on a local network?
a. NAT (Network Address Translation) b. ARP (Address Resolution Protocol) c. ICMP d. OSPF
Answer: B

What is the primary goal of OSPF (Open Shortest Path First) in the network layer?
a. To secure network communication with encryption
b. To dynamically discover network topology and calculate the best routes c. To allocate IP addresses to devices
d. To perform error checking and correction
Answer: B

What is the primary purpose of a QoS framework in Ad Hoc Wireless Networks?
a. To maximize network bandwidth b. To minimize latency c. To ensure fair and predictable performance for different types of traffic d. To enhance network security
Answer: C

Which of the following is NOT a common component of a QoS framework for Ad Hoc Wireless Networks?
a. Traffic classification b. Traffic shaping c. Error correction d. Traffic scheduling
Answer: C

In a QoS framework, what is "traffic classification" used for?
a. Prioritizing traffic based on its content b. Identifying malicious traffic c. Controlling the rate of data transmission d. Analyzing network performance
Answer: A

Which QoS framework component involves allocating specific time slots for different types of traffic to ensure their timely delivery?
a. Traffic classification b. Traffic shaping c. Traffic scheduling d. Traffic monitoring
Answer: C

What does the term "traffic scheduling" refer to in the context of a QoS framework?
a. Controlling the rate of data transmission b. Prioritizing traffic based on content c. Assigning time slots for data transmission based on QoS policies d. Analyzing network performance
Answer: C

In a QoS framework for Ad Hoc Wireless Networks, what is the purpose of "traffic monitoring"?
a. Identifying traffic patterns for congestion control b. Controlling the rate of data transmission c. Assigning IP addresses to devices d. Analyzing encryption algorithms
Answer: A

Which QoS framework component focuses on ensuring that critical traffic, such as voice or video, receives higher priority over less time-sensitive traffic?
a. Traffic shaping b. Traffic classification c. Traffic monitoring d. Traffic scheduling
Answer: D

UNIT V - Energy Management In Ad Hoc Wireless Networks: Need for Energy Management in Ad Hoc Wireless Networks, Classification of Energy Management Schemes, Battery Management Schemes, Transmission Power Management Schemes, System Power Management Schemes

Why is energy management important in Ad Hoc Wireless Networks?
a. To increase network latency b. To improve data throughput c. To conserve limited energy resources in mobile devices d. To enhance network security
Answer: C

In Ad Hoc Wireless Networks, which devices are typically constrained by limited battery power?
a. Routers b. Servers c. Mobile devices d. Access points
Answer: C

What is the primary challenge related to energy consumption in mobile devices within Ad Hoc Wireless Networks?
a. Overheating of devices b. Short battery life c. Slow data transfer rates d. Limited mobility
Answer: B

Which of the following techniques can be used for energy-efficient routing in Ad Hoc Wireless Networks?
a. Always choosing the shortest path b. Selecting routes that minimize energy consumption c. Broadcasting data to all nodes simultaneously d. Increasing the transmit power of devices
Answer: B

Which layer of the OSI model is primarily responsible for energy management in Ad Hoc Wireless Networks?
a. Data Link Layer b. Network Layer c. Transport Layer d. Physical Layer
Answer: A

What is the main benefit of efficient energy management in Ad Hoc Wireless Networks?
a. Improved network speed b. Longer device battery life c. Enhanced data security d. Increased network coverage
Answer: B

In wireless networks, energy management schemes can be broadly classified into which two categories?
a. Power generation and power consumption b. Active mode and sleep mode c. Hardware-based and software-based d. Transmission and reception
Answer: B

Which energy management scheme involves adjusting the transmission power of wireless devices based on their proximity to each other?
a. Dynamic Voltage Scaling (DVS) b. Dynamic Frequency Scaling (DFS) c. Power control d. Load shedding
Answer: C

What is the primary goal of energy-efficient routing algorithms in wireless networks? a. Minimizing network latency b. Maximizing data throughput c. Reducing energy consumption in data transmission d. Enhancing data security
Answer: C

Which energy management scheme involves turning off certain hardware components or subsystems when they are not in active use?
a. Dynamic Voltage Scaling (DVS) b. Dynamic Frequency Scaling (DFS) c. Sleep mode d. Power control
Answer: C

In wireless sensor networks (WSNs), what type of energy management scheme aims to distribute communication and processing tasks among nodes to balance energy consumption?
a. Duty cycling b. Data aggregation c. Power control d. Dynamic Voltage Scaling (DVS)
Answer: A

Which energy management scheme involves reducing the clock frequency of a device's processor to save energy when the device is idle?
a. Dynamic Voltage Scaling (DVS) b. Dynamic Frequency Scaling (DFS) c. Sleep mode d. Load shedding
Answer: B

What is the primary advantage of energy management schemes in wireless networks?
a. Increased data transmission speed b. Extended battery life of devices c. Improved network security d. Enhanced network coverage
Answer: B

What is the primary purpose of battery management schemes in Ad Hoc networks?

a. To maximize data throughput b. To minimize network latency

c. To optimize the use of energy resources in mobile devices d. To improve network security
Answer: C

In Ad Hoc networks, which devices are typically constrained by limited battery power? a. Routers b. Servers c. Mobile devices d. Access points
Answer: C

Which of the following is NOT a common component of battery management schemes in Ad Hoc networks?

a. Battery charging algorithms b. Energy-efficient routing protocols c. Sleep mode optimization d. Data compression techniques
Answer: D

What is the primary challenge related to battery management in mobile devices within Ad Hoc networks?

a. Overheating of devices b. Short battery life c. Slow data transfer rates d. Limited mobility
Answer: B

What is the primary goal of energy-efficient routing algorithms in battery management for Ad Hoc networks?

a. Minimizing network latency b. Maximizing data throughput c. Reducing energy consumption in data transmission d. Enhancing data security
Answer: C

Which of the following is a common technique used to extend the battery life of mobile devices in Ad Hoc networks? a. Increasing the screen brightness b. Turning off wireless radios when not in use c. Running resource-intensive applications d. Disabling security protocols
Answer: B

What is the primary purpose of transmission power management schemes in Ad Hoc networks?

a. To maximize data throughput b. To minimize network latency c. To optimize the use of transmission power to conserve energy d. To enhance network security
Answer: C

In Ad Hoc networks, which devices can benefit from transmission power management schemes?

a. Routers b. Servers c. Mobile devices d. Access points
Answer: C

What is the primary challenge related to transmission power management in mobile devices within Ad Hoc networks?

a. Overheating of devices b. Short battery life c. Slow data transfer rates d. Limited mobility
Answer: B

Which transmission power management technique involves dynamically adjusting the transmit power of wireless devices based on their communication range and signal quality?

a. Dynamic Voltage Scaling (DVS) b. Dynamic Frequency Scaling (DFS) c. Power control d. Load shedding
Answer: C

What is the primary goal of system power management schemes in Ad Hoc networks? a. Maximizing data throughput b. Minimizing network latency c. Optimizing the use of system resources to conserve energy d. Enhancing network security
Answer: C

Which of the following is a common technique used to extend the battery life of mobile devices in Ad Hoc networks through system power management?

a. Increasing the screen brightness b. Turning off wireless radios when not in use c. Running resource-intensive applications d. Disabling security protocols
Answer: B

_____ is also known as impulse or Zero carrier radio technology

A)Ultra wideband technology B) Femtocell Technology C) Multicasting d)Multiplexing
Answer: A

UWB operates across narrow bandwidth

   A) True   B) False
Answer: B

Which of the following is a drawback of UWB Technology _____

A) not Appropriate for WAN B)Power Limited C)Small Spectrum D) Limited Jitter Requirements
Answer: D

UWB Technology supports low bitrate and low speed

A) True   B) false
Answer: B

What is the primary medium used for data transmission in Optical Wireless Networks (OWC)?

a. Radio waves b. Infrared light c. Microwave signals d. Electrical cables
Answer: B

In OWC, which key technology is used to modulate data onto light signals for transmission?

a. Amplitude modulation b. Frequency modulation c. Phase modulation d. Polarization modulation
Answer: C

What is the key advantage of Optical Wireless Networks compared to traditional radio-based wireless networks?

a. Higher data transfer speeds b. Longer communication range c. Lower cost of infrastructure d. Lower susceptibility to interference
Answer: A

Which component in an Optical Wireless Network acts as the point of access for user devices and connects them to the optical backbone network?

a. Router b. Access Point (AP) c. Optical transceiver d. Modem
Answer: B

Which IEEE 802.11 standard operates in the 5 GHz frequency band and supports data rates of up to 54 Mbps?

a. 802.11a b. 802.11b c. 802.11g d. 802.11n
Answer: A

Which IEEE 802.11 standard operates in the 2.4 GHz frequency band and supports data rates of up to 11 Mbps?

a. 802.11a b. 802.11b c. 802.11g d. 802.11n
Answer: B

Which IEEE 802.11 standard uses Orthogonal Frequency Division Multiplexing (OFDM) as its modulation scheme?

a. 802.11a b. 802.11b c. 802.11g d. 802.11n
Answer: A

What is the maximum data rate supported by the IEEE 802.11g standard?

11 Mbps b. 24 Mbps c. 54 Mbps d. 108 Mbps
Answer: C

Which of the following IEEE 802.11 standards is backward compatible with 802.11b?

802.11a b. 802.11g c. 802.11n d. 802.11ac
Answer: B

What frequency bands are used by the IEEE 802.11a standard for wireless communication?

2.4 GHz b. 5 GHz c. Both 2.4 GHz and 5 GHz d. 60 GHz
Answer: B

Which IEEE 802.11 standard introduced the use of Multiple Input Multiple Output (MIMO) technology for improved wireless performance?

802.11a b. 802.11b c. 802.11g d. 802.11n
Answer: D

1) **List any four design goals of WLANs.**

    1) Low power for battery use
    2) No special permissions or licenses needed to use the LAN
    3) Easy to use for everyone, simple management

    4) Security, privacy, safety

2) **List out the differences between IEEE 802.11 and IEEE 802.16.**

While IEEE 802.11 has been a successful standard for WLANs, it is not suited for use in BWA. This fact can be appreciated when the differences between IEEE 802.11 and IEEE 802.16, listed below, are studied.

- IEEE 802.11 has been designed for mobile terminals, which is irrelevant in the context of MANs. IEEE 802.16 has been designed for broadband data such as digital video and telephony.
- The number of users and bandwidth usage per user is much higher in a typical IEEE 802.16 network when compared to a typical IEEE 802.11 basic service set.
- IEEE 802.16 is completely connection-oriented and QoS guarantees are made for all transmissions. Though IEEE 802.11 provides some QoS support for real-time data (in the PCF mode), it has not been designed for QoS support for broadband usage.

- They can even use other services such as location tracking using the___.
  (a) GPS   (b) VPS   (c) GPRS   (d) GSM
- W-CDMA is____.
  (a) Wireless Code Division Multiple Access
  (b) Wideband code division multiple access
  (c) Wide code division multiple access
  (d) Web band code division multiple access
- Wireless networks are computer networks that use radio frequency channels as their ___ for communication.
  (a) Physical Medium   (b) Medium Access Control   (c) TDMA   (d) CDMA

- Which of the following is a collection of many separate networks?
  (a) LAN   (b) MAN   (c) WAN   (d) PAN
- Ad hoc wireless networks can be very useful in establishing____among a group of soldiers for tactical operations. ( )
  (a) Communication   (b) Information   (c) Network channel   (d) DCN
- MANET does not face the challenge of ( )
  (a) Security   (b) Node cooperation   (c) QoS   (d) Quick network setup
- This mode of wireless network allows devices to communicate directly with each other.
  (a) Ad-hoc   (b) Digital   (c) Physical   (d) Infrastructure
- A____is self-created when roaming wireless devices are connected over a wireless link.
  (a) MANET   (b) WPAN   (c) DARPA   (d) NTDR
- RTS/CTS period is called ( )
  (a) Waiting period   (b) Contention period
  (c) Running period   (d) none of these
- Existing MAC protocols cannot be used in MANETs because of ( )
  (a) Resource constrained nodes   (b) Limited bandwidth
  (c) Lack of centralized control   (d) All of the above
- MARCH exploits the properties of____antennas and overhearing properties of MANETs. ( )
  (a) Single directional   (b) Bi-directional   (c) Omnidirectional   (d) None of these

GATE/Competitive Exams Questions

1) Explain the physical layer and transceiver design considerations in wireless networks.

2) Explain major issues that are to be considered for Wireless Internet.

3) Discuss in detail various modulation techniques.

4) The portion of the electromagnetic spectrum occupied by a signal is called _____

    (a) Signal spectrum   (b) Bandwidth   (c) Frequency width   (d) Signal strength

5) You have 5 information signals and only one transmitter. What technique will help in transmitting all the 5 signals?

    (a) Frequency modulation   (b) Multiplexing

    (c) Amplification   (d) Amplitude modulation

6) What networking structure do the 802.11 standards define?
    (a) WLAN   (b)BSS   (c)WPAN   (d)WMAN

7) Which one of the IEEE 802 committees is tasked with the development of security standards?
    (a) 802.10   (b) 802.16   (c) 802.15   (d) 802.11

8) The use of Ultra wideband (UWB) technology for WPANs is specified under the _____standards.

    (a) 802.15.3   (b) 802.15.1   (c) 802.15.4   (d) 802.15.2

GATE/Competitive Exams Questions

➤ Write in detail about the communication device in a WSN.

➤ Discuss the potential applications of WSN.

➤ Discuss following main issues of designing a MAC protocol.

    o Quality of services (QoS)

    o Hidden and exposed node problem.

➤ Explain in detail CSMA-Based MAC Protocols in Wireless Ad Hoc networks.