Name of the Bundle	Proficient and Advanced Bundle V2	Subject	Networking V2
Topic	IP Address	Last updated on	18 January 2024

1. What does IP stand for in the context of networking?

   a. Internet Protocol

   b. Interconnect Protocol

   c. Information Packet

   d. Intranet Protocol

   Ans: a. Internet Protocol

   Explanation: IP stands for Internet Protocol, which is a fundamental protocol used for communication in computer networks.

2. How many bits are there in an IPv4 address?

   a. 32 bits

   b. 64 bits

   c. 128 bits

   d. 256 bits

   Ans: a. 32 bits

   Explanation: An IPv4 address is a 32-bit numeric label used to identify devices on a network.

Name of the Bundle	Proficient and Advanced Bundle V2	Subject	Networking V2
Topic	IP Address	Last updated on	18 January 2024

3. What is the purpose of subnetting in IP networking?

   a. To reduce the number of available IP addresses

   b. To improve network security

   c. To divide a large network into smaller, more manageable sub-networks

   d. To increase the speed of data transmission

   Ans: c. To divide a large network into smaller, more manageable sub-networks

   Explanation: Subnetting is used to divide a large network into smaller sub-networks for better organization and management.

4. Which of the following is a valid IPv6 address format?

   a. 192.168.1.1

   b. 2001:0db8:85a3:0000:0000:8a2e:0370:7334

   c. ABCD:1234:5678:8901:FGHI:JKLM:NOPQ:RSTU

   d. 256.128.64.32

   Ans: b. 2001:0db8:85a3:0000:0000:8a2e:0370:7334

   Explanation: IPv6 addresses are represented as eight groups of four hexadecimal digits.

Name of the Bundle	Proficient and Advanced Bundle V2	Subject	Networking V2
Topic	IP Address	Last updated on	18 January 2024

5. Which reserved IP address is commonly used for loopback testing?

   a. 192.168.0.1

   b. 10.0.0.1

   c. 127.0.0.1

   d. 172.16.0.1

   Ans: c. 127.0.0.1

   Explanation: The loopback address (127.0.0.1) is used for testing the network stack on a local device.

6. What is the purpose of DHCP in a network?

   a. To assign static IP addresses

   b. To translate domain names to IP addresses

   c. To dynamically assign IP addresses to devices on a network

   d. To route data between networks

   Ans: c. To dynamically assign IP addresses to devices on a network

   Explanation: DHCP (Dynamic Host Configuration Protocol) is used to dynamically assign IP addresses to devices in a network.

Name of the Bundle	Proficient and Advanced Bundle V2	Subject	Networking V2
Topic	IP Address	Last updated on	18 January 2024

7. Which class of IPv4 addresses is used for multicasting?

   a. Class A

   b. Class B

   c. Class C

   d. Class D

   Ans: d. Class D

   Explanation: Class D addresses (224.0.0.0 to 239.255.255.255) are reserved for multicasting.

8. Which protocol is used to find the MAC address associated with a given IP address on a local network?

   a. DNS

   b. ARP

   c. DHCP

   d. ICMP

   Ans: b. ARP

   Explanation: ARP (Address Resolution Protocol) is used to find the MAC address associated with a given IP address on a local network.

Name of the Bundle	Proficient and Advanced Bundle V2	Subject	Networking V2
Topic	IP Address	Last updated on	18 January 2024

9. Which class of IPv4 addresses is reserved for research purposes?

   a. Class A

   b. Class B

   c. Class C

   d. Class E

   Ans: d. Class E

   Explanation: Class E addresses (240.0.0.0 to 255.255.255.255) are reserved for research purposes groups.

10. What is the purpose of a subnet mask in IP networking?

    a. To determine the network portion of an IP address

    b. To identify the host portion of an IP address

    c. To divide IP addresses into classes

    d. To specify reserved IP addresses

    Ans: a. To determine the network portion of an IP address

    Explanation: A subnet mask is used to determine the network portion of an IP address.

Name of the Bundle	Proficient and Advanced Bundle V2	Subject	Networking V2
Topic	IP Address	Last updated on	18 January 2024

11. Which of the following is a private IPv4 address range?

a. 192.168.0.0 to 192.168.255.255

b. 172.16.0.0 to 172.31.255.255

c. 10.0.0.0 to 10.255.255.255

d. All of the above

Ans: d. All of the above

Explanation: 192.168.0.0/16, 172.16.0.0/12, and 10.0.0.0/8 are private IPv4 address ranges.

12. Which IPv4 address is reserved for the default route (gateway) on a network?

a. 0.0.0.0

b. 127.0.0.1

c. 255.255.255.255

d. 192.168.1.1

Ans: a. 0.0.0.0

Explanation: The 0.0.0.0 address is used as the default route (gateway) on a network.

Name of the Bundle	Proficient and Advanced Bundle V2	Subject	Networking V2
Topic	IP Address	Last updated on	18 January 2024

13. What is the maximum number of hosts per subnet in a Class C network without subnetting?

a. 254

b. 128

c. 64

d. 32

Ans: a. 254

Explanation: In a Class C network without subnetting, there are 256 addresses, with 2 reserved for network and broadcast, leaving 254 for hosts.

14. What is the purpose of the ICMP protocol?

a. To dynamically assign IP addresses

b. To translate domain names to IP addresses

c. To diagnose network connectivity issues

d. To route data between networks

Ans: c. To diagnose network connectivity issues

Explanation: ICMP (Internet Control Message Protocol) is used for diagnosing network connectivity issues, such as ping and traceroute.

Name of the Bundle	Proficient and Advanced Bundle V2	Subject	Networking V2
Topic	IP Address	Last updated on	18 January 2024

15. In CIDR notation, what does "/24" represent?

a. 24 bits for the network, 8 bits for hosts

b. 24 bits for hosts, 8 bits for the network

c. 24 bits for the network, 24 bits for hosts

d. 8 bits for the network, 24 bits for hosts

Ans: a. 24 bits for the network, 8 bits for hosts

Explanation: "/24" in CIDR notation represents 24 bits for the network and 8 bits for hosts.

16. What is the purpose of a default gateway in networking?

a. To translate domain names to IP addresses

b. To provide a route for traffic outside the local network

c. To assign IP addresses dynamically

d. To map private IP addresses to public IP addresses

Ans: b. To provide a route for traffic outside the local network

Explanation: A default gateway provides a route for traffic outside the local network.

Name of the Bundle	Proficient and Advanced Bundle V2	Subject	Networking V2
Topic	IP Address	Last updated on	18 January 2024

17. Which of the following is a valid IPv4 address?

a. 300.200.100.50

b. 192.168.256.1

c. 172.31.0.1

d. 10.0.0.0

Ans: c. 172.31.0.1

Explanation: 172.31.0.1 is a valid IPv4 address.

18. What is the purpose of an IPv4 address?

a. To identify a device on a local network

b. To provide a unique identifier for a device on the internet

c. To determine the physical location of a device

d. To assign dynamic host configurations

Ans: b. To provide a unique identifier for a device on the internet

Explanation: IPv4 addresses are used to uniquely identify devices on the internet.

Name of the Bundle	Proficient and Advanced Bundle V2	Subject	Networking V2
Topic	IP Address	Last updated on	18 January 2024

19. What is the total number of unique IPv4 addresses available for public use?

a. 2^16 (65,536)

b. 2^24 (16,777,216)

c. 2^32 (4,294,967,296)

d. 2^128

Ans: c. 2^32 (4,294,967,296)

Explanation: IPv4 provides approximately 4.3 billion unique addresses for public use.

20. Which type of IP address is used to represent multiple devices sharing the same public IP address for internet communication?

a. Static IP

b. Dynamic IP

c. Private IP

d. Shared IP

Ans: d. Shared IP

Explanation: Shared IP addresses represent multiple devices sharing the same public IP address for internet communication, often used in NAT (Network Address Translation).

Name of the Bundle	Proficient and Advanced Bundle V2	Subject	Networking V2
Topic	IP Address	Last updated on	18 January 2024

21. What is the purpose of a multicast IP address?

a. To identify a specific device on a network

b. To broadcast data to all devices on a network

c. To route data between networks

d. To deliver data to a group of devices interested in the content

Ans: d. To deliver data to a group of devices interested in the content

Explanation: Multicast addresses are used to deliver data to a group of devices interested in the content.

22. Which type of IP address is assigned by a DHCP server dynamically and may change over time?

a. Static IP

b. Dynamic IP

c. Public IP

d. Private IP

Ans: b. Dynamic IP

Explanation: Dynamic IP addresses are assigned by a DHCP server and may change over time.

Name of the Bundle	Proficient and Advanced Bundle V2	Subject	Networking V2
Topic	IP Address	Last updated on	18 January 2024

23. What is the primary purpose of a public IP address?

a. To identify a device on a local network

b. To provide a unique identifier for a device on the internet

c. To determine the physical location of a device

d. To assign dynamic host configurations

Ans: b. To provide a unique identifier for a device on the internet

Explanation: Public IP addresses uniquely identify devices on the internet.

24. Which type of IP address is used for communication between devices within the same local network?

a. Static IP

b. Dynamic IP

c. Private IP

d. Public IP

Ans: c. Private IP

Explanation: Private IP addresses are used for communication between devices within the same local network and are not routable on the public internet.

Name of the Bundle	Proficient and Advanced Bundle V2	Subject	Networking V2
Topic	IP Address	Last updated on	18 January 2024

25. Which type of IP address is typically assigned manually and does not change over time?

a. Static IP

b. Dynamic IP

c. Public IP

d. Shared IP

Ans: a. Static IP

Explanation: Static IP addresses are typically assigned manually and do not change over time.

26. Which type of IP address is used for point-to-point communication between devices?

a. Unicast

b. Broadcast

c. Multicast

d. Anycast

Ans: a. Unicast

Explanation: Unicast addresses are used for point-to-point communication between a single sender and a single receiver.

Name of the Bundle	Proficient and Advanced Bundle V2	Subject	Networking V2
Topic	IP Address	Last updated on	18 January 2024

27. Which class of IPv4 addresses is reserved for loopback testing?

a. Class A

b. Class B

c. Class C

d. Class D

Ans: a. Class A

Explanation: Class A addresses (127.0.0.0 to 127.255.255.255) are reserved for loopback testing.

28. Which type of IP address is used for communication with the nearest device in a group?

a. Unicast

b. Broadcast

c. Multicast

d. Anycast

Ans: d. Anycast

Explanation: Anycast addresses are used for communication with the nearest device in a group.

Name of the Bundle	Proficient and Advanced Bundle V2	Subject	Networking V2
Topic	IP Address	Last updated on	18 January 2024

29. What is the primary use of a broadcast IP address?

a. To identify a specific device on a network

b. To broadcast data to all devices on a network

c. To route data between networks

d. To deliver data to a specific group of devices

Ans: b. To broadcast data to all devices on a network

Explanation: Broadcast addresses are used to send data to all devices on a network.

30. Which type of IP address is used for testing network configurations without connecting to the internet?

a. Unicast

b. Broadcast

c. Loopback

d. Anycast

Ans: c. Loopback

Explanation: Loopback addresses are used for testing network configurations without connecting to the internet.

Name of the Bundle	Proficient and Advanced Bundle V2	Subject	Networking V2
Topic	IP Address	Last updated on	18 January 2024

31. Which type of IP address is used for communication with all devices on the same local network?

a. Unicast

b. Broadcast

c. Multicast

d. Anycast

Ans: c. Multicast

Explanation: Multicast addresses are used for communication with all devices on the same local network that have expressed interest in receiving the data.

32. What is the range of IP addresses in the 240.0.0.0/4 subnet used for in IPv4?

a. Private networks

b. Loopback testing

c. Reserved for future use

d. Multicast communication

Ans: d. Multicast communication

Explanation: The 240.0.0.0/4 subnet is reserved for multicast communication in IPv4.

Name of the Bundle	Proficient and Advanced Bundle V2	Subject	Networking V2
Topic	IP Address	Last updated on	18 January 2024

33. Which type of IP address is used for communication with all devices on all networks?

a. Unicast

b. Broadcast

c. Multicast

d. Anycast

Ans: b. Broadcast

Explanation: Broadcast addresses are used to send data to all devices on all networks.

34. Which type of IP address is used for communication with any single device in a group?

a. Unicast

b. Broadcast

c. Multicast

d. Anycast

Ans: a. Unicast

Explanation: Unicast addresses are used for communication with any single device in a group.

Name of the Bundle	Proficient and Advanced Bundle V2	Subject	Networking V2
Topic	IP Address	Last updated on	18 January 2024

35. What does IPv4 stand for?

a. Internet Video Protocol 4

b. Internet Protocol Version 4

c. Integrated Voice Processing 4

d. Intranet Virtualization 4

Ans: b. Internet Protocol Version 4

Explanation: IPv4 stands for Internet Protocol Version 4, the fourth version of the Internet Protocol.

36. In which part of an IPv4 address are the network and host portions divided in Class A addresses?

a. First octet

b. Second octet

c. Third octet

d. Fourth octet

Ans: a. First octet

Explanation: In Class A addresses, the first octet is dedicated to the network portion, leaving three octets for hosts.

Name of the Bundle	Proficient and Advanced Bundle V2	Subject	Networking V2
Topic	IP Address	Last updated on	18 January 2024

37. Which class of IPv4 addresses is commonly used for small to medium-sized networks?

a. Class A

b. Class B

c. Class C

d. Class D

Ans: c. Class C

Explanation: Class C addresses are commonly used for small to medium-sized networks, providing a moderate number of host addresses.

38. What is the range of valid first octet values for Class B IPv4 addresses?

a. 1 to 126

b. 128 to 191

c. 192 to 223

d. 224 to 255

Ans: b. 128 to 191

Explanation: Class B addresses have a first octet range of 128 to 191.

Name of the Bundle	Proficient and Advanced Bundle V2	Subject	Networking V2
Topic	IP Address	Last updated on	18 January 2024

39. Which class of IPv4 addresses has a default subnet mask of 255.255.0.0?

a. Class A

b. Class B

c. Class C

d. Class D

Ans: b. Class B

Explanation: Class B addresses have a default subnet mask of 255.255.0.0, providing a large number of potential hosts.

40. How many usable host addresses are there in a Class C network with a subnet mask of 255.255.255.240?

a. 14

b. 16

c. 30

d. 32

Ans: a. 14

Explanation: With a subnet mask of 255.255.255.240, there are 16 addresses in total, with 2 reserved for network and broadcast, leaving 14 usable host addresses.

Name of the Bundle	Proficient and Advanced Bundle V2	Subject	Networking V2
Topic	IP Address	Last updated on	18 January 2024

41. Which of the following is a valid IPv4 address?

a. 192.300.1.1

b. 172.16.0.1

c. 10.0.0.0

d. 256.128.64.32

Ans: b. 172.16.0.1

Explanation: 172.16.0.1 is a valid IPv4 address.

42. What is the default subnet mask for a Class A IPv4 address?

a. 255.0.0.0

b. 255.255.0.0

c. 255.255.255.0

d. 255.255.255.255

Ans: a. 255.0.0.0

Explanation: The default subnet mask for a Class A address is 255.0.0.0.

Name of the Bundle	Proficient and Advanced Bundle V2	Subject	Networking V2
Topic	IP Address	Last updated on	18 January 2024

43. What is the default subnet mask for a Class C IPv4 address?

a. 255.0.0.0

b. 255.255.0.0

c. 255.255.255.0

d. 255.255.255.255

Ans: c. 255.255.255.0

Explanation: The default subnet mask for a Class C address is 255.255.255.0.

44. Which class of IPv4 addresses is commonly used for large-scale networks and organizations?

a. Class A

b. Class B

c. Class C

d. Class D

Ans: a. Class A

Explanation: Class A addresses provide a large number of network addresses and are commonly used for large-scale networks and organizations.

Name of the Bundle	Proficient and Advanced Bundle V2	Subject	Networking V2
Topic	IP Address	Last updated on	18 January 2024

45. What is the maximum number of hosts that can be assigned in a Class C IPv4 network?

a. 126

b. 254

c. 65,534

d. 16,777,214

Ans: b. 254

Explanation: In a Class C network, 8 bits are reserved for hosts, allowing for 2^8−2 hosts.

46. In IPv4, which class of IP addresses uses the first two octet for the network portion and the remaining two octets for hosts?

a. Class A

b. Class B

c. Class C

d. Class D

Ans: b. Class B

Explanation: Class B addresses use the first two octets for the network portion, allowing for a moderate number of hosts.

Name of the Bundle	Proficient and Advanced Bundle V2	Subject	Networking V2
Topic	IP Address	Last updated on	18 January 2024

47. How many bits are there in the host portion of an IPv4 address with a subnet mask of 255.255.255.192?

a. 6 bits

b. 8 bits

c. 16 bits

d. 24 bits

Ans: a. 6 bits

Explanation: With a subnet mask of 255.255.255.192, there are 6 bits in the host portion.

48. What is the range of valid first octet values for Class C IPv4 addresses?

a. 1 to 126

b. 128 to 191

c. 192 to 223

d. 224 to 255

Ans: c. 192 to 223

Explanation: Class C addresses have a first octet range of 192 to 223.

Name of the Bundle	Proficient and Advanced Bundle V2	Subject	Networking V2
Topic	IP Address	Last updated on	18 January 2024

49. What is the default subnet mask for a Class C IPv4 address?

a. 255.0.0.0

b. 255.255.0.0

c. 255.255.255.0

d. 255.255.255.255

Ans: c. 255.255.255.0

Explanation: The default subnet mask for a Class C address is 255.255.255.0.

50. Which of the following is a reserved IPv4 address used to represent "this host" or "this network"?

a. 0.0.0.0

b. 127.0.0.1

c. 255.255.255.255

d. 192.168.1.1

Ans: b. 127.0.0.1

Explanation: 127.0.0.1 is the loopback address, representing "this host" on the local machine.

Name of the Bundle	Proficient and Advanced Bundle V2	Subject	Networking V2
Topic	IP Address	Last updated on	18 January 2024

51. How many bits are there in the network portion of an IPv4 address with a subnet mask of 255.255.0.0?

a. 8 bits

b. 16 bits

c. 24 bits

d. 32 bits

Ans: b. 16 bits

Explanation: With a subnet mask of 255.255.0.0, there are 16 bits in the network portion.

52. What is the maximum number of hosts per subnet in a Class A network without subnetting?

a. 128 million

b. 64 thousand

c. 32 thousand

d. 16 million

Ans: d. 16 million

Explanation: In a Class A network without subnetting, there are 16,777,214 usable hosts.

Name of the Bundle	Proficient and Advanced Bundle V2	Subject	Networking V2
Topic	IP Address	Last updated on	18 January 2024

53. How many classes of IPv4 addresses are there?

a. 2

b. 3

c. 4

d. 5

Ans: d. 5

Explanation: There are Five classes of IPv4 addresses—Class A, Class B, Class C, Class D, and Class E.

54. What is the range of valid first octets in a Class B IPv4 address?

a. 1-127

b. 128-191

c. 192-223

d. 224-239

Ans: b. 128-191

Explanation: Class B addresses have a valid range of 128 to 191 in the first octet.

Name of the Bundle	Proficient and Advanced Bundle V2	Subject	Networking V2
Topic	IP Address	Last updated on	18 January 2024

55. What is the maximum number of hosts that can be assigned in a Class B IPv4 network?

a. 254

b. 65,534

c. 16,777,214

d. 4,294,966,254

Ans: b. 65,534

Explanation: In a Class B network, 16 bits are reserved for hosts, allowing for 2^16−2 hosts.

56. What is the range of valid first octets in a Class A IPv4 address?

a. 1-127

b. 128-191

c. 192-223

d. 224-239

Ans: a. 1-127

Explanation: Class A addresses have a valid range of 1 to 127 in the first octet.

Name of the Bundle	Proficient and Advanced Bundle V2	Subject	Networking V2
Topic	IP Address	Last updated on	18 January 2024

57. What is the range of valid first octets in a Class D IPv4 address?

a. 1-127

b. 128-191

c. 192-223

d. 224-239

Ans: d. 224-239

Explanation: Class D addresses have a valid range of 224 to 239 in the first octet.

58. What is the range of valid first octets in a Class E IPv4 address?

a. 1-127

b. 128-191

c. 192-223

d. 224-239

Ans: d. 240-255

Explanation: Class E addresses have a valid range of 240 to 255 in the first octet.

Name of the Bundle	Proficient and Advanced Bundle V2	Subject	Networking V2
Topic	IP Address	Last updated on	18 January 2024

59. How many bits are used to identify the network portion in a Class A IPv4 address?

a. 8 bits

b. 16 bits

c. 24 bits

d. 32 bits

Ans: a. 8 bits

Explanation: In Class A, the first octet is used for network identification, leaving 24 bits for host addresses.

60. What is CIDR (Classless Inter-Domain Routing) used for in IPv4?

a. Simplifying IP address management

b. Reducing the number of available IP addresses

c. Improving network security

d. Eliminating the concept of address classes

Ans: d. Eliminating the concept of address classes

Explanation: CIDR allows for a more flexible allocation of IP addresses by eliminating the traditional concept of address classes.

Name of the Bundle	Proficient and Advanced Bundle V2	Subject	Networking V2
Topic	IP Address	Last updated on	18 January 2024

61. What is the primary advantage of using CIDR in IP addressing?

a. Improved network speed

b. Simplified address management

c. Reduced address conflicts

d. Efficient use of IP addresses

Ans: d. Efficient use of IP addresses

Explanation: CIDR allows for more efficient allocation of IP addresses by specifying variable-length prefixes.

62. What is the purpose of VLSM (Variable-Length Subnet Masking)?

a. Reducing IP address conflicts

b. Improving network security

c. Efficiently using IP addresses by using different subnet mask lengths

d. Simplifying address management

Ans: c. Efficiently using IP addresses by using different subnet mask lengths

Explanation: VLSM allows for the use of different subnet mask lengths within the same network, optimizing address utilization.

Name of the Bundle	Proficient and Advanced Bundle V2	Subject	Networking V2
Topic	IP Address	Last updated on	18 January 2024

63. What is the smallest subnet size that can be created using CIDR?

a. /1

b. /8

c. /32

d. /64

Ans: c. /32

Explanation: The smallest subnet size in CIDR is /32, representing a single host.

64. What is the primary reason for the introduction of CIDR in IPv4 addressing?

a. To increase the total number of available IPv4 addresses

b. To simplify IP address management

c. To improve network security

d. To delay the need for IPv6 adoption

Ans: b. To simplify IP address management

Explanation: CIDR was introduced to simplify IP address management and allocation.

Name of the Bundle	Proficient and Advanced Bundle V2	Subject	Networking V2
Topic	IP Address	Last updated on	18 January 2024

65. What does CIDR stand for in networking?

a. Centralized Internet Data Routing

b. Classless Inter-Domain Routing

c. Controlled Internet Dynamic Routing

d. Conventional IP Data Representation

Ans: b. Classless Inter-Domain Routing

Explanation: CIDR stands for Classless Inter-Domain Routing, a method for IP address allocation and IP routing.

66. What problem does CIDR address in traditional IP addressing with classes?

a. Lack of security

b. Address exhaustion

c. Slow data transmission

d. Inefficient routing

Ans: b. Address exhaustion

Explanation: CIDR addresses the problem of address exhaustion by allowing more flexible allocation of IP addresses.

Name of the Bundle	Proficient and Advanced Bundle V2	Subject	Networking V2
Topic	IP Address	Last updated on	18 January 2024

67. In CIDR notation, what does "/16" represent for an IPv4 address?

a. 16 bits for the network, 16 bits for hosts

b. 16 bits for hosts, 16 bits for the network

c. 16 bits for the network, 8 bits for hosts

d. 8 bits for the network, 16 bits for hosts

Ans: a. 16 bits for the network, 16 bits for hosts

Explanation: "/16" in CIDR notation represents 16 bits for the network and 16 bits for hosts.

68. What is the purpose of CIDR notation in IP addressing?

a. To represent IP addresses in hexadecimal format

b. To simplify IP address representation and routing

c. To allocate IP addresses based on geographical regions

d. To enhance IP address security

Ans: b. To simplify IP address representation and routing

Explanation: CIDR notation simplifies IP address representation and allows for more efficient routing.

Name of the Bundle	Proficient and Advanced Bundle V2	Subject	Networking V2
Topic	IP Address	Last updated on	18 January 2024

69. What is the smallest possible CIDR prefix length?

a. /0

b. /1

c. /8

d. /16

Ans: a. /0

Explanation: The smallest possible CIDR prefix length is /0, representing the entire IPv4 address space.

70. How does CIDR differ from traditional IP addressing with classes?

a. CIDR uses variable-length prefixes, while traditional IP addressing uses fixed-length classes.

b. CIDR does not use prefixes, while traditional IP addressing relies on fixed-length classes.

c. CIDR allows only a single prefix length, while traditional IP addressing supports multiple classes.

d. CIDR uses hexadecimal representation, while traditional IP addressing uses decimal.

Ans: a. CIDR uses variable-length prefixes, while traditional IP addressing uses fixed-length classes.

Explanation: CIDR allows for variable-length prefixes, providing greater flexibility in IP address allocation.

Name of the Bundle	Proficient and Advanced Bundle V2	Subject	Networking V2
Topic	IP Address	Last updated on	18 January 2024

71. In CIDR, what is the significance of the number following the forward slash ("/")?

a. It indicates the total number of subnets.

b. It represents the subnet mask in binary.

c. It specifies the maximum number of hosts per subnet.

d. It denotes the length of the network prefix.

Ans: d. It denotes the length of the network prefix.

Explanation: The number following the forward slash ("/") in CIDR notation denotes the length of the network prefix.

72. Which CIDR notation represents a single IP address?

a. /1

b. /8

c. /32

d. /64

Ans: c. /32

Explanation: A /32 CIDR notation represents a single IP address.

Name of the Bundle	Proficient and Advanced Bundle V2	Subject	Networking V2
Topic	IP Address	Last updated on	18 January 2024

73. How does CIDR impact the routing table size in comparison to traditional IP addressing with classes?

a. CIDR generally results in smaller routing tables.

b. CIDR generally results in larger routing tables.

c. CIDR has no impact on routing table size.

d. CIDR eliminates the need for routing tables.

Ans: a. CIDR generally results in smaller routing tables.

Explanation: CIDR allows for aggregation of IP address blocks, leading to more efficient routing tables.

74. What is the CIDR notation for the entire IPv4 address space?

a. /0

b. /1

c. /32

d. /128

Ans: a. /0

Explanation: The CIDR notation /0 represents the entire IPv4 address space.

Name of the Bundle	Proficient and Advanced Bundle V2	Subject	Networking V2
Topic	IP Address	Last updated on	18 January 2024

75. What is the purpose of CIDR's hierarchical addressing structure?

a. To assign IP addresses based on geographical regions.

b. To eliminate the need for subnets.

c. To simplify IP address representation.

d. To aggregate and summarize IP address blocks in routing tables.

Ans: d. To aggregate and summarize IP address blocks in routing tables.

Explanation: CIDR's hierarchical structure allows aggregation and summarization of IP address blocks, reducing the size of routing tables.

76. Which CIDR notation is equivalent to a subnet mask of 255.255.255.192?

a. /24

b. /26

c. /28

d. /30

Ans: b. /26

Explanation: The subnet mask 255.255.255.192 is equivalent to the CIDR notation /26.

Name of the Bundle	Proficient and Advanced Bundle V2	Subject	Networking V2
Topic	IP Address	Last updated on	18 January 2024

77. How does CIDR impact IP address assignment for organizations?

a. CIDR eliminates the need for IP address assignment.

b. CIDR simplifies IP address assignment for organizations.

c. CIDR increases the complexity of IP address assignment.

d. CIDR has no impact on IP address assignment.

Ans: b. CIDR simplifies IP address assignment for organizations.

Explanation: CIDR allows organizations greater flexibility in assigning and managing IP addresses.

78. In CIDR, what is the purpose of the subnet mask expressed in prefix notation (e.g., /24)?

a. To determine the network portion of an IP address.

b. To identify the host portion of an IP address.

c. To specify the maximum number of hosts in a subnet.

d. To indicate the length of the network prefix.

Ans: d. To indicate the length of the network prefix.

Explanation: The subnet mask in prefix notation specifies the length of the network prefix in CIDR.

Name of the Bundle	Proficient and Advanced Bundle V2	Subject	Networking V2
Topic	IP Address	Last updated on	18 January 2024

79. What is FLSM in networking?

a. Floating-Length Subnet Masking

b. Fixed-Length Subnet Masking

c. Flexible-Length Subnet Masking

d. Fast-Length Subnet Masking

Ans: b. Fixed-Length Subnet Masking

Explanation: FLSM stands for Fixed-Length Subnet Masking, a method of subnetting where each subnet within a network uses the same subnet mask.

80. In FLSM, what happens to the size of subnets as you move through the network?

a. Subnets become larger

b. Subnets become smaller

c. Subnet size remains constant

d. Subnet size is unpredictable

Ans: c. Subnet size remains constant

Explanation: In FLSM, all subnets within the network use the same subnet mask, so the size of subnets remains constant.

Name of the Bundle	Proficient and Advanced Bundle V2	Subject	Networking V2
Topic	IP Address	Last updated on	18 January 2024

81. In FLSM, what is the main advantage of using fixed-size subnets?

a. Efficient use of IP addresses

b. Simplified network management

c. Improved security

d. Dynamic address allocation

Ans: a. Efficient use of IP addresses

Explanation: FLSM allows for efficient use of IP addresses by allocating fixed-size subnets, reducing IP address waste.

82. In FLSM, how is the subnet mask determined for each subnet in a network?

a. It is assigned randomly.

b. It is manually configured.

c. It is dynamically allocated by a DHCP server.

d. It is the same for all subnets.

Ans: d. It is the same for all subnets.

Explanation: In FLSM, each subnet in the network uses the same subnet mask, making it a fixed-length subnetting approach.

Name of the Bundle	Proficient and Advanced Bundle V2	Subject	Networking V2
Topic	IP Address	Last updated on	18 January 2024

83. In FLSM, what is the main drawback when dealing with variable-sized subnets?

a. Wasteful use of IP addresses

b. Complexity in network management

c. Limited scalability

d. Incompatibility with IPv6

Ans: a) Wasteful use of IP addresses

Explanation: FLSM can result in wasteful use of IP addresses when variable-sized subnets are required.

84. What does VLSM stand for in networking?

a. Very Large Subnet Masking

b. Variable-Length Subnet Masking

c. Virtual Local Subnet Masking

d.Versatile Layered Subnet Masking

Ans: b. Variable-Length Subnet Masking

Explanation: VLSM stands for Variable-Length Subnet Masking, a technique that allows the use of different subnet mask lengths for different subnets within the same major network.

Name of the Bundle	Proficient and Advanced Bundle V2	Subject	Networking V2
Topic	IP Address	Last updated on	18 January 2024

85. What is the primary advantage of using VLSM in IP addressing?

a. Improved network security

b. Simplified network configuration

c. Efficient utilization of IP address space

d. Reduced need for routers

Ans: c. Efficient utilization of IP address space

Explanation: VLSM enables more efficient use of IP address space by allowing subnets of varying sizes within the same major network.

86. In VLSM, how is the subnet mask determined for each subnet in a network?

a. It is assigned randomly.

b. It is manually configured.

c. It is dynamically allocated by a DHCP server.

d. It varies based on the subnet's size and requirements.

Ans: d. It varies based on the subnet's size and requirements.

Explanation: In VLSM, each subnet can have a different subnet mask, allowing flexibility in designing subnets based on their specific size and requirements.

Name of the Bundle	Proficient and Advanced Bundle V2	Subject	Networking V2
Topic	IP Address	Last updated on	18 January 2024

87. How does VLSM differ from FLSM (Fixed-Length Subnet Masking)?

a. VLSM allows for subnets of varying sizes, while FLSM uses fixed-size subnets.

b. VLSM is more suitable for small networks, while FLSM is better for large networks.

c. VLSM requires static routing, while FLSM supports dynamic routing.

d. VLSM is only applicable to IPv6, while FLSM is used with IPv4.

Ans: a. VLSM allows for subnets of varying sizes, while FLSM uses fixed-size subnets.

Explanation: VLSM provides flexibility by allowing different subnets within the same major network to have varying sizes, while FLSM uses fixed-size subnets.

88. What is the main advantage of using VLSM in a network with multiple subnets of varying sizes?

a. Reduced administrative overhead

b. Improved network performance

c. Efficient use of available address space

d. Simplified security management

Ans: c. Efficient use of available address space

Explanation: VLSM allows for the efficient use of available IP address space by tailoring subnet sizes to match the specific requirements of each subnet.

Name of the Bundle	Proficient and Advanced Bundle V2	Subject	Networking V2
Topic	IP Address	Last updated on	18 January 2024

89. Which of the following is a key benefit of VLSM in routing and network design?

a. Reduced need for routers

b. Simplified subnet configuration

c. Improved fault tolerance

d. More efficient utilization of IP addresses

Ans: d. More efficient utilization of IP addresses

Explanation: VLSM allows for more efficient utilization of IP addresses by tailoring subnet sizes to match specific requirements, reducing IP address waste.

90. The gigabit Ethernet port G0/0 is configured with IP address 172.20.10.1/23 to connect subnetworks. What will be the maximum number of valid hosts allowed to this subnet?

a. 512

b. 254

c. 510

d.1022

Ans: c. 510

Explanation: 172.20.10.1/23 contains network bits 23, so host bit = 32 – 23 = 9. Thus, 9 bits are available for hosts. Therefore, the number of valid hosts is given by 2^9 – 2 = 510.

Name of the Bundle	Proficient and Advanced Bundle V2	Subject	Networking V2
Topic	IP Address	Last updated on	18 January 2024

91. You are a network administrator and you are asked to develop an IP addressing plan with 192.20.20.0/24 to allow the maximum number of subnets with as many as 50 hosts each. Which IP address range meets these requirements?

a. 192.20.20.0/27

b. 192.20.20.0/26

c. 192.20.20.0/29

d. 192.20.20.0/28

Ans: b. 192.20.20.0/26

Explanation:

To create a subnet with 50 hosts, we need 2^h – 2 >= 50 (h = number of host bits required to create a subnet for 50 hosts). If h = 6, we have ; 62 >= 25. Hence, 32 – 6 = 26 (network bits).

Name of the Bundle	Proficient and Advanced Bundle V2	Subject	Networking V2
Topic	IP Address	Last updated on	18 January 2024

92. As a network administrator, you are trying to configure the serial interface of a router with IP address 120.10.10.28/30. But the error message is displayed. What could be the possible cause for it?

a. The address is a broadcast address.

b. The Ethernet interface is faulty.

c. The router does not support VLSM.

d. This address is a network address.

Ans: d. This address is a network address.

Explanation:

Subnet mask for 120.10.10.28/30 is 255.255.255.252 (because, $2^{32-30} - 2 = 2^2 - 2 = 2$. Therefore , the block size for each subnet = 2+1+1 (each 1 denotes network and broadcast address) = 4.

Then, the subnet range will be 0-3, 4-7, 8-11, 12-15, 16-19, 20-23, 24-27, 28-31 and so on. Thus, 120.10.10.28/30 is the network id of the 28-30 block of IP.

Name of the Bundle	Proficient and Advanced Bundle V2	Subject	Networking V2
Topic	IP Address	Last updated on	18 January 2024

93. You are given the IP Address of 193.100.100.0/24 and need 50 hosts per subnetwork. How total sub-networks, valid host per subnet, and subnet mask do you get after subnetting?

a. 4 subnets, 64 hosts per subnets, and 255.255.255.128

b. 2 subnets, 62 hosts per subnets, and 255.255.255.192

c. 4 subnets, 62 hosts per subnets, and 255.255.255.192

d. 4 subnets, 62 hosts per subnets, and 255.255.255.128

Ans: c. 4 subnets, 62 hosts per subnets, and 255.255.255.192

Explanation:

For 50 hosts, the numbers of host bits required are 6 i.e. each subnet will have 26 – 2 = 62 host which is enough to accommodate 5o hosts.

Number of subnets = 22 = 4 (since two subnet bits are borrowed from the host portion)

Thus, the new subnet mask = 255.255.255.192 or /26.

Name of the Bundle	Proficient and Advanced Bundle V2	Subject	Networking V2
Topic	IP Address	Last updated on	18 January 2024

94. Your company has been given the IP Address of 199.2.1.0 /24 to the subnet. You plan to put each of the 5 floors in your building on its own subnet. What is the IP range of the LAST available network once subnetted?

a. 199.2.1.0 – 199.2.1.255

b. 199.2.1.128 – 199.2.1.255

c. 199.2.1.224 – 199.2.1.255

d. 199.2.1.223 – 199.2.1.255

Ans: c. 199.2.1.224 – 199.2.1.255

Explanation:

Your office has 5 floors and each floor will have different subnets. So, you have to take 23 = 8 subnets. Thus, 3 bits must be borrowed from the host to create subnets. The new subnet mask will be 255.255.255.224. the block size of each subnet = 256-224 = 32. Hence, the corresponding subnet range will be 0-31, 32-63, 64-95, 95-127, 128-159, 160-191, 192-223 and 224-255. The IP range for the last subnet is 199.2.1.224 to 199.2.1.255.

Name of the Bundle	Proficient and Advanced Bundle V2	Subject	Networking V2
Topic	IP Address	Last updated on	18 January 2024

95. How many subnets can be gained by subnetting 172.17.32.0/23 into a /27 mask, and how many usable host addresses will there be per subnet?

a. 8 subnets, 30 hosts

b. 16 subnets, 32 hosts

c. 16 subnets, 30 hosts

d. 8 subnets, 32 hosts

Ans: c. 16 subnets, 30 hosts

Explanation:

We have a network address 172.17.32.0/23. Out of this network, we further need to create the subnets with mask /27. For this, we have to borrow 4 extra subnets from the host portion to create the subnets. The number of new subnets created is given by 24 = 16.

Again, the remaining host bit = 32-27 = 5. Therefore, the number of usable host addresses per subnet is given by 25 – 2 = 30.

Name of the Bundle	Proficient and Advanced Bundle V2	Subject	Networking V2
Topic	IP Address	Last updated on	18 January 2024

96. What could be the maximum number of usable host IP for 20.20.20.20/20?

a. 4096 usable hosts

b. 4094 usable hosts

c. 4098 usable hosts

d. 4092 usable hosts

Ans: b. 4094 usable hosts

Explanation:

For 20.20.20.20/20, the number of host bits is 32 – 20 = 12.

Therefore, numbers of usable host = 2^12 – 2 = 4094

97. Which of the following is not the valid host IP that does not belong to the subnet 100.100.1.128/25.

a. 100.100.1.127

b. 100.100.1.129

c. 100.100.1.254

d. 100.100.1.130

Ans: a. 100.100.1.127

Explanation: The valid host range for subnet 100.100.1.128/25 is 100.100.1.129 to 100.100.1.254.

Only 100.100.1.127 doesn't belong to the given subnet.

Name of the Bundle	Proficient and Advanced Bundle V2	Subject	Networking V2
Topic	IP Address	Last updated on	18 January 2024

98. You have a network address 170.25.0.0/16. You are going to create 64 subnets and 1000 hosts for each subnet. What would be the correct subnet mask for each subnet?

a. 255.255.254.0

b. 255.255.252.0

c. 255.255.240.0

d. 255.255.248.0

Ans: b. 255.255.252.0

Explanation:

For creating a 1000 host subnet for 170.25.0.0/16, we need to take the number of host bits as given by the following calculation:

2^h – 2 =1000; where h = host bits required

0r, 2^10 – 2 >= 1000

or, 1024 – 2 >= 1000

Therefore, host bit = 10. then new subnet mask =

11111111.11111111.11111100.00000000

255.255.252.0

Name of the Bundle	Proficient and Advanced Bundle V2	Subject	Networking V2
Topic	IP Address	Last updated on	18 January 2024

99. The correct usable host range for 180.110.0.0/26 is _____.

a. 180.110.0.0 – 180.110.0.63

b. 180.110.0.1 – 180.110.0.63

c. 180.110.0.0 – 180.110.0.62

d. 180.110.0.1 – 180.110.0.62

Ans: d. 180.110.0.1 – 180.110.0.62

Explanation:

For 180.110.0.0/26, the subnet mask is

11111111.11111111.11111111.11000000

0r, 255.255.255.192.

hence, the block size (4th octet) = 256 – 192 = 64

Ip range is from 180.110.0.0 to 180.110.0.63

Therefore, the usable host range is 180.110.0.1 to 180.110.0.62.

Name of the Bundle	Proficient and Advanced Bundle V2	Subject	Networking V2
Topic	IP Address	Last updated on	18 January 2024

100. The best subnetting plan for point to point link is _____.

a. /30

b. /31

c. /32

d. /29

Ans: a. /30

Explanation:

For a point to point link, we need only 2 addresses. Hence, $2^2 - 2 = 2$. Keeping two bits for hosts, we will have the subnet mask /30.

101. What is the maximum number of IP addresses that can be assigned to hosts on a local subnet that uses the 255.255.255.224 subnet mask?

a. 14

b. 15

c. 16

d. 30

Ans: d. 30

Explanation: A /27 (255.255.255.224) is 3 bits on and 5 bits off. This provides 8 subnets, each with 30 hosts. Does it matter if this mask is used with a Class A, B, or C network address? Not at all. The number of host bits would never change.

Name of the Bundle	Proficient and Advanced Bundle V2	Subject	Networking V2
Topic	IP Address	Last updated on	18 January 2024

102. You need to subnet a network that has 5 subnets, each with at least 16 hosts. Which classful subnet mask would you use?

a. 255.255.255.192

b. 255.255.255.224

c. 255.255.255.240

d. 255.255.255.248

Ans: b. 255.255.255.224

Explanation:

You need 5 subnets, each with at least 16 hosts. The mask 255.255.255.240 provides 16 subnets with 14 hosts-this will not work.

The mask 255.255.255.224 provides 8 subnets, each with 30 hosts.

Name of the Bundle	Proficient and Advanced Bundle V2	Subject	Networking V2
Topic	IP Address	Last updated on	18 January 2024

103. You have a network that needs 29 subnets while maximizing the number of host addresses available on each subnet. How many bits must you borrow from the host field to provide the correct subnet mask?

a. 2

b. 3

c. 4

d. 5

Ans: d. 5

Explanation:

A 240 mask is 4 subnet bits and provides 16 subnets, each with 14 hosts. We need more subnets, so let's add subnet bits. One more subnet bit would be a 248 mask. This provides 5 subnet bits (32 subnets) with 3 host bits (6 hosts per subnet). This is the best Ans.

Name of the Bundle	Proficient and Advanced Bundle V2	Subject	Networking V2
Topic	IP Address	Last updated on	18 January 2024

104. You have an interface on a router with the IP address of 192.168.192.10/29. Including the router interface, how many hosts can have IP addresses on the LAN attached to the router interface?

a. 6

b. 8

c. 30

d. 32

Ans: a. 6

Explanation:

A /29 (255.255.255.248), regardless of the class of address, has only 3 host bits. Six hosts is the maximum number of hosts on this LAN, including the router interface.

Name of the Bundle	Proficient and Advanced Bundle V2	Subject	Networking V2
Topic	IP Address	Last updated on	18 January 2024

105. The network address of 172.16.0.0/19 provides how many subnets and hosts?

a. 7 subnets, 30 hosts each

b. 8 subnets, 8,190 hosts each

c. 8 subnets, 2,046 hosts each

d.7 subnets, 2,046 hosts each

Ans: b. 8 subnets, 8,190 hosts each

Explanation:

A CIDR address of /19 is 255.255.224.0. This is a Class B address, so that is only 3 subnet bits, but it provides 13 host bits, or 8 subnets, each with 8,190 hosts.

Name of the Bundle	Proficient and Advanced Bundle V2	Subject	Networking V2
Topic	IP Address	Last updated on	18 January 2024

106. You have an interface on a router with the IP address of 192.168.192.10/29. What is the broadcast address the hosts will use on this LAN?

a. 192.168.192.15

b. 192.168.192.31

c. 192.168.192.63

d. 192.168.192.127

Ans: a. 192.168.192.15

Explanation: A /29 (255.255.255.248) has a block size of 8 in the fourth octet. This means the subnets are 0, 8, 16, 24, etc. 10 is in the 8 subnet. The next subnet is 16, so 15 is the broadcast address.

Name of the Bundle	Proficient and Advanced Bundle V2	Subject	Networking V2
Topic	IP Address	Last updated on	18 January 2024

107. What is the subnetwork address for a host with the IP address 200.10.5.68/28?

a. 200.10.5.56

b. 200.10.5.32

c. 200.10.5.64

d. 200.10.5.0

Ans: c. 200.10.5.64

Explanation: This is a pretty simple question. A /28 is 255.255.255.240, which means that our block size is 16 in the fourth octet. 0, 16, 32, 48, 64, 80, etc. The host is in the 64 subnet.