NETWORK ADMINISTRATOR

TECHNICAL PAPER II

1. A company is allocated a Class C IP address block with a subnet mask of 255.255.255.240. How many subnets can the company create from this block?

(a) 8 subnets

(b) 16 subnets

(c) 32 subnets

(d) 64 subnets

Answer: (c) 32 subnets

2. A company is given a Class B IP address block of 172.16.0.0/16 and needs to create subnets for 10 departments. Each department requires a maximum of 250 hosts. What subnet mask should the company use for the subnets?

(a) 255.255.255.0

(b) 255.255.255.128

(c) 255.255.255.192

(d) 255.255.255.224

Answer: (c) 255.255.255.192

3. A company is allocated a Class B IP address block of 130.20.0.0 and needs to create subnets for its 8 branches. Each branch requires a maximum of 1000 hosts. What is the subnet mask to be used for the subnets?

(a) 255.255.255.0

(b) 255.255.254.0

(c) 255.255.252.0

(d) 255.255.248.0

Answer: (d) 255.255.248.0

4. A large organization is allocated a Class B IP address block of 172.16.0.0/16. The organization needs to create subnets for its various departments and data centers. They have the following requirements:

Data Center A requires 1000 hosts.

Data Center B requires 500 hosts.

Department X requires 200 hosts.

Department Y requires 300 hosts.

The organization wants to use Variable Length Subnet Masking (VLSM) to efficiently allocate IP addresses. What is the minimum subnet mask prefix length (CIDR notation) that satisfies all the requirements?

(a) /20

(b) /21

(c) /22

(d) /23

Answer: (a) /20

5. A company is given a Class B IP address block of 172.16.0.0/16. They need to design a network with VLSM to accommodate the following subnets:

Subnet A requires 800 hosts.

Subnet B requires 500 hosts.

Subnet C requires 300 hosts.

Subnet D requires 200 hosts.

What is the minimum number of bits required for the subnet portion (subnet mask) to satisfy all the requirements and avoid wasting IP addresses?

(a) 9 bits

(b) 10 bits

(c) 11 bits

(d) 12 bits

Answer: (b) 10 bits

6. A large organization is given a Class C IP address block of 192.168.0.0/24. They need to create subnets using VLSM to accommodate the following requirements:

Subnet A requires 100 hosts.

Subnet B requires 50 hosts.

Subnet C requires 25 hosts.

Subnet D requires 10 hosts.

What is the minimum number of bits required for the subnet portion (subnet mask) to satisfy all the requirements and avoid wasting IP addresses?

(a) 6 bits

(b) 7 bits

(c) 8 bits

(d) 9 bits

Answer: (c) 8 bits

7. A router receives a data packet with the destination IP address 192.168.10.100. The router has the following routing table entry:

Destination: 192.168.10.0/24

Next Hop: 192.168.20.1

Interface: eth0

Metric: 10

What will the router do with the data packet?

(a) Drop the packet.

(b) Forward the packet to the next hop IP address 192.168.20.1 on the interface eth0.

(c) Forward the packet directly to the destination IP address 192.168.10.100 on the interface eth0.

(d) Send an ICMP redirect message to the source IP address.

Answer: (b) Forward the packet to the next hop IP address 192.168.20.1 on the interface eth0.

8. A router has multiple routing table entries for the same destination subnet as follows:

Destination: 192.168.0.0/16, Next Hop: 192.168.1.1, Interface: eth0, Metric: 10

Destination: 192.168.0.0/24, Next Hop: 192.168.2.1, Interface: eth1, Metric: 20

Destination: 192.168.0.0/18, Next Hop: 192.168.3.1, Interface: eth2, Metric: 30

Which routing table entry will the router use to forward a data packet with the destination IP address 192.168.0.100?

(a) Entry 1

(b) Entry 2

(c) Entry 3

(d) The router will load-balance the packet across all three entries.

Answer: (b) Entry 2

9. A router receives a data packet with the destination IP address 172.16.10.100. The router has the following routing table entry:

Destination: 172.16.0.0/16

Next Hop: 192.168.1.1

Interface: eth0

Metric: 10

What will the router do with the data packet?

(a) Forward the packet to the next hop IP address 192.168.1.1 on the interface eth0.

(b) Drop the packet.

(c) Forward the packet directly to the destination IP address 172.16.10.100 on the interface eth0.

(d) Send an ICMP redirect message to the source IP address.

Answer: (a) Forward the packet to the next hop IP address 192.168.1.1 on the interface eth0.

10. In a network with the Routing Information Protocol (RIP) using split horizon with poison reverse, what will be the hop count for a route that has reached the maximum hop count and is being advertised back to the originating router?

(a) 15

(b) 16

(c) 17

(d) Infinity

Answer: (b) 16

11. A router in a network using the Routing Information Protocol (RIP) has a maximum hop count of 15. If a data packet has to traverse 16 routers before reaching its destination, what will the router do with the packet?

(a) Forward the packet to the next hop router.

(b) Drop the packet.

(c) Route the packet using a different protocol.

(d) Send an ICMP redirect message to the source IP address.

Answer: (b) Drop the packet.

12. In a network with the Routing Information Protocol (RIP) using holddowns, what is the purpose of the holddown timer?

(a) To prevent routing loops.

(b) To limit the maximum hop count of routes.

(c) To prevent route poisoning.

(d) To temporarily block route updates for certain routes after a route has been invalidated.

Answer: (d) To temporarily block route updates for certain routes after a route has been invalidated.

13. A network is using a distance-vector routing protocol, and a routing loop is detected between two routers. The routers are configured to use the split horizon with poison reverse technique. If the maximum hop count is 15, what will the routers do to break the routing loop?

(a) Increment the hop count to 16 and advertise the route as unreachable.

(b) Set the hop count to infinity and advertise the route as unreachable.

(c) Decrease the hop count by 1 and advertise the route as reachable.

(d) Implement route poisoning and hold downs to prevent routing loops.

Answer: (b) Set the hop count to infinity and advertise the route as unreachable.

14. In a distance-vector routing protocol, what is the maximum hop count that is considered as infinity to prevent routing loops?

(a) 8

(b) 12

(c) 15

(d) 16

Answer: (d) 16

15. Which mechanism in distance-vector routing protocols helps to prevent routing loops by informing neighbouring routers that a route is unreachable?

(a) Split horizon

(b) Route poisoning

(c) Holddowns

(d) Triggered updates

Answer: (b) Route poisoning

16. Which of the following is NOT a distance-vector routing protocol?

(a) RIP (Routing Information Protocol)

(b) OSPF (Open Shortest Path First)

(c) BGP (Border Gateway Protocol)

(d) EIGRP (Enhanced Interior Gateway Routing Protocol)

Answer: (b) OSPF (Open Shortest Path First)

17. In Routing Information Protocol (RIP), what is the default maximum hop count allowed for a route before it is considered unreachable?

(a) 12

(b) 15

(c) 16

(d) 24

Answer: (c) 16

18. What is the purpose of a holddown timer in distance-vector routing protocols?

(a) To prevent updates from being sent during network convergence.

(b) To prevent routing loops by temporarily blocking updates for a route after it is removed.

(c) To refresh the routing table periodically.

(d) To advertise route metrics to neighboring routers.

Answer: (b) To prevent routing loops by temporarily blocking updates for a route after it is removed.

19. In distance-vector routing protocols, what is the technique used to avoid the count-to-infinity problem where a route is incorrectly advertised with an infinite metric?

(a) Split horizon

(b) Poison reverse

(c) Route poisoning

(d) Triggered updates

Answer: (b) Poison reverse

20. Which statement is true regarding the distance-vector routing protocol RIP version 2 (RIPv2)?

(a) It supports classless routing and Variable Length Subnet Masking (VLSM).

(b) It converges faster than OSPF.

(c) It uses link-state packets for routing updates.

(d) It has a lower administrative distance than RIPv1.

Answer: (a) It supports classless routing and Variable Length Subnet Masking (VLSM).

21. In a network running the Enhanced Interior Gateway Routing Protocol (EIGRP), a router has established neighbour relationships with 5 neighbouring routers. Each of these neighbours sends routing updates every 10 seconds. If each update message is 100 bytes in size, how much bandwidth will be consumed by these updates in 1 hour?

(a) 180 Kbps

(b) 360 Kbps

(c) 720 Kbps

(d) 1440 Kbps

Answer: (c) 720 Kbps

22. In a network using the Diffusing Update Algorithm (DUAL) for routing decisions, a router has detected a topology change and must recalculate its routes. The router has a total of 10 routes in its routing table, and each route has a metric of 100. If the convergence time for DUAL is 30 milliseconds per route, how long will it take for the router to recalculate all routes after the topology change?

(a) 3 milliseconds

(b) 30 milliseconds

(c) 300 milliseconds

(d) 3 seconds

Answer: (c) 300 milliseconds

23. In a network with multiple AS (Autonomous Systems), Router A is configured to run EIGRP. It has learned 5 routes from AS1, 7 routes from AS2, and 3 routes from AS3. If the maximum-paths parameter is set to 4, how many routes will Router A install in its routing table?

(a) 4 routes

(b) 6 routes

(c) 10 routes

(d) 14 routes

Answer: (c) 10 routes

24. A network has three routers (A, B, and C) running EIGRP. Router A has a loopback interface with IP address 10.0.0.1/32, Router B has a loopback interface with IP address 10.0.0.2/32, and Router C has a loopback interface with IP address 10.0.0.3/32. The three routers are interconnected, and their interfaces have default EIGRP metrics. If Router A wants to reach the loopback interface of Router C, what will be the reported hop count in the EIGRP update message?

(a) 1

(b) 2

(c) 3

(d) 4

Answer: (b) 2

25. A network is configured with OSPF using the following link costs:

Cost between Router A and Router B: 10

Cost between Router B and Router C: 5

Cost between Router A and Router C: 15

What will be the total cost of the shortest path from Router A to Router C in OSPF?

(a) 10

(b) 15

(c) 20

(d) 25

Answer: (c) 20

26. In a network with three OSPF routers (Router A, Router B, and Router C) connected together, the OSPF hello timer is set to 10 seconds. If the OSPF dead timer is set to 40 seconds, and Router A fails to receive a hello packet from Router B, how long will it take for Router A to declare Router B as dead?

(a) 10 seconds

(b) 20 seconds

(c) 30 seconds

(d) 40 seconds

Answer: (c) 30 seconds

27. In an OSPF network, Router A and Router B are connected through multiple interfaces. Router A has a loopback interface with IP address 10.0.0.1/32, and Router B has a loopback interface with IP address 10.0.0.2/32. If Router A wants to reach the loopback interface of Router B, what will be the reported hop count in the OSPF update message?

(a) 1

(b) 2

(c) 3

(d) 4

Answer: (b) 2

28. In a multi-access network running OSPF, there are five routers (Router A, Router B, Router C, Router D, and Router E). If Router A and Router B both have the same highest OSPF priority and Router A has the higher router ID, who will be elected as the OSPF DR and BDR for the network?

(a) Router A as DR and Router B as BDR

(b) Router B as DR and Router A as BDR

(c) Router A as both DR and BDR

(d) Router B as both DR and BDR

Answer: (a) Router A as DR and Router B as BDR

29. In OSPF, what is the name of the data structure that stores all the routers and their corresponding links within an area?

(a) Link State Advertisement (LSA)

(b) Open Shortest Path First Database (OSPF-DB)

(c) Link State Database (LSDB)

(d) SPF Tree

Answer: (c) Link State Database (LSDB)

30. OSPF uses a link-state algorithm to calculate the shortest path tree. What is the algorithm called?

(a) Bellman-Ford algorithm

(b) Dijkstra's algorithm

(c) Floyd-Warshall algorithm

(d) Kruskal's algorithm

Answer: (b) Dijkstra's algorithm

31. Which OSPF area is responsible for interconnecting all other OSPF areas within an Autonomous System (AS)?

(a) Backbone Area (Area 0)

(b) Transit Area

(c) Stub Area

(d) Not-So-Stubby Area (NSSA)

Answer: (a) Backbone Area (Area 0)

32. In OSPF, what is the default administrative distance for an intra-area route?

(a) 90

(b) 110

(c) 120

(d) 170

Answer: (c) 120

33. OSPF routers elect a designated router (DR) and a backup designated router (BDR) on multi-access networks to reduce the number of adjacencies and control OSPF updates. What is the multicast IP address used by OSPF routers to send updates to the DR and BDR?

(a) 224.0.0.9

(b) 224.0.0.5

(c) 224.0.0.6

(d) 224.0.0.10

Answer: (c) 224.0.0.6

34. Which OSPF network type is used for point-to-point links, such as serial connections between routers?

(a) Broadcast

(b) Non-Broadcast Multi-Access (NBMA)

(c) Point-to-Point

(d) Point-to-Multipoint

Answer: (c) Point-to-Point

35. Loopback interfaces in OSPF are commonly used for router identification and to provide a stable interface for OSPF neighbors. What is the default OSPF cost associated with a loopback interface?

(a) 0

(b) 1

(c) 5

(d) 10

Answer: (a) 0

36. In a network with 1000 devices, each device generates 5 broadcast packets per second. If there are no mechanisms in place to control broadcast traffic, how many broadcast packets will be transmitted in the network per minute?

(a) 5000 packets

(b) 50,000 packets

(c) 300,000 packets

(d) 3,000,000 packets

Answer: (c) 300,000 packets

37. A network has implemented advanced security measures to prevent unauthorized access. Each packet must go through 5 different security checks, and the processing time for each security check is 0.5 milliseconds. If a data packet has to traverse 10 security checks before reaching its destination, what will be the total time taken to process the packet?

(a) 2.5 milliseconds

(b) 5 milliseconds

(c) 10 milliseconds

(d) 50 milliseconds

Answer: (d) 50 milliseconds

38. In a highly flexible network, the routing tables of all routers are updated every 2 seconds. If there are 20 routers in the network, and each routing table update message is 500 bytes in size, what will be the average bandwidth consumed by the routing updates per minute?

(a) 1 Kbps

(b) 10 Kbps

(c) 100 Kbps

(d) 1 Mbps

Answer: (b) 10 Kbps

39. A large-scale network is designed to handle a high number of devices and traffic. If the network is capable of supporting up to 10 million devices, how many IP addresses are required in total to accommodate all devices, considering both IPv4 and IPv6 addressing?

(a) 10 million IP addresses

(b) 20 million IP addresses

(c) 30 million IP addresses

(d) 40 million IP addresses

Answer: (c) 30 million IP addresses

40. In a network, there are 10 switches, and each switch is configured with 20 static VLANs. If each VLAN has an average of 50 devices connected, how many devices are there in total in all the VLANs?

(a) 500 devices

(b) 1000 devices

(c) 2000 devices

(d) 5000 devices

Answer: (c) 2000 devices

41. A network administrator is configuring dynamic VLANs using the GVRP (GARP VLAN Registration Protocol) on a switch. The switch receives VLAN membership updates every 5 seconds from connected devices. If the switch has a total of 50 ports, how many VLAN membership updates will the switch process in one minute?

(a) 10 updates

(b) 50 updates

(c) 300 updates

(d) 600 updates

Answer: (c) 300 updates

42. In a network with 8 switches, each switch is configured with 10 static VLANs. The network administrator wants to add two more VLANs to each switch. If it takes an average of 30 seconds to configure each VLAN on a switch, how long will it take to add the two new VLANs to all switches?

(a) 2 minutes

(b) 4 minutes

(c) 8 minutes

(d) 16 minutes

Answer: (d) 16 minutes

43. A network has 100 devices, and each device belongs to a different VLAN. If the network administrator decides to reconfigure the VLANs dynamically using a VLAN management tool, how many VLAN membership updates will the network experience during the reconfiguration process?

(a) 100 updates

(b) 200 updates

(c) 500 updates

(d) 1000 updates

Answer: (a) 100 updates

44. In a network with 10 switches, each switch is configured in VTP server mode. If a new VLAN is created on one of the switches and it needs to be propagated to all other switches, how many VTP update messages will be generated in total?

(a) 10

(b) 20

(c) 45

(d) 90

Answer: (c) 45

45. A network has 5 VLANs, and each VLAN is configured on a different switch. If VTP pruning is enabled and only 2 switches have active ports in each VLAN, how many VLANs will be pruned from the trunk links?

(a) 0

(b) 1

(c) 2

(d) 3

Answer: (d) 3

46. In a large network with 50 switches, the network administrator decides to configure VTP in transparent mode for 10 switches and in client mode for the remaining switches. If each VTP configuration change takes an average of 1 minute to complete on each switch, how long will it take to configure VTP on all switches?

(a) 10 minutes

(b) 40 minutes

(c) 50 minutes

(d) 60 minutes

Answer: (c) 50 minutes

47. A network is configured with three VTP servers and two VTP clients. If a new VLAN is created on one of the VTP servers, how many VTP update messages will be generated to synchronize the VLAN database on the other switches?

(a) 2

(b) 3

(c) 5

(d) 6

Answer: (c) 5

48. A company uses dynamic NAT to translate private IP addresses to public IP addresses. The company has 5000 devices with private IP addresses that need to be translated to public IP addresses. If the company has a pool of 100 public IP addresses, what is the maximum number of devices that can simultaneously access the Internet?

(a) 100 devices

(b) 500 devices

(c) 1000 devices

(d) 5000 devices

Answer: (a) 100 devices

49. In a network with 50 devices using static NAT, each device is assigned a unique public IP address for external communication. If each public IP address costs Rs. 10 per month and the network uses these public IP addresses for 6 months, what will be the total cost of using static NAT for external communication?

(a) Rs. 300

(b) Rs. 3000

(c) Rs. 5000

(d) Rs. 6000

Answer: (d) Rs. 6000

50. A network uses port address translation (PAT) to translate private IP addresses to a single public IP address for external communication. If the network has 1000 devices with private IP addresses and PAT uses port numbers to distinguish between individual devices, how many devices can simultaneously access external services using the same public IP address?

(a) 64 devices

(b) 128 devices

(c) 512 devices

(d) 1024 devices

Answer: (c) 512 devices

51. A small office uses a combination of static NAT and dynamic NAT. The office has 20 devices, and 10 devices are configured for static NAT, while the rest use dynamic NAT. If each static NAT translation requires 2 public IP addresses and the dynamic NAT pool has 50 public IP addresses, how many public IP addresses are required in total?

(a) 60 public IP addresses

(b) 80 public IP addresses

(c) 100 public IP addresses

(d) 120 public IP addresses

Answer: (b) 80 public IP addresses

52. A company is using Network Address Translation with Port Address Translation (NAT/PAT) to translate private IP addresses to a single public IP address. The company has a pool of 1000 ports available for NAT/PAT. If each device requires a minimum of 10 unique ports for external communication, how many devices can simultaneously access the Internet using the same public IP address?

(a) 50 devices

(b) 100 devices

(c) 500 devices

(d) 1000 devices

Answer: (c) 500 devices

53. A network is using Network Address Translation with Static NAT to map private IP addresses to public IP addresses. The network has 50 devices that require external access. If each device is assigned a unique public IP address, how many public IP addresses are required?

(a) 25 public IP addresses

(b) 50 public IP addresses

(c) 100 public IP addresses

(d) 500 public IP addresses

Answer: (b) 50 public IP addresses

54. An organization has 200 remote employees who connect to the company's internal network using a Virtual Private Network (VPN). The company uses Network Address Translation with Overload (NAT Overload) to translate the private IP addresses of remote employees to a single public IP address. If each remote employee's connection requires 5 unique port mappings, how many port mappings are required in total to support all remote employees simultaneously?

(a) 200 port mappings

(b) 400 port mappings

(c) 800 port mappings

(d) 1000 port mappings

Answer: (c) 800 port mappings

55. In a network with 100 devices, the network administrator decides to implement Dynamic NAT to translate the private IP addresses to public IP addresses for external communication. If the Dynamic NAT pool has a total of 30 public IP addresses, what is the maximum number of devices that can simultaneously access the Internet?

(a) 30 devices

(b) 60 devices

(c) 90 devices

(d) 100 devices

Answer: (a) 30 devices

56. A small office uses Static NAT to map its 15 internal private IP addresses to 15 unique public IP addresses for external communication. If each static NAT translation requires 2 public IP addresses, how many public IP addresses are required in total?

(a) 15 public IP addresses

(b) 30 public IP addresses

(c) 45 public IP addresses

(d) 60 public IP addresses

Answer: (b) 30 public IP addresses

57. An organization has 500 remote employees who connect to the company's internal network using a Virtual Private Network (VPN). The company uses Dynamic NAT to translate the private IP addresses of remote employees to a pool of 100 public IP addresses. If each remote employee's connection requires a unique public IP address, what is the maximum number of employees that can simultaneously access the company's internal network?

(a) 100 employees

(b) 200 employees

(c) 300 employees

(d) 500 employees

Answer: (a) 100 employees

58. A company wants to set up a high availability environment using Windows Server Failover Clustering. They have four servers with the following specifications:

Server A: CPU with 4 cores, 16 GB RAM, 1 TB storage

Server B: CPU with 6 cores, 24 GB RAM, 2 TB storage

Server C: CPU with 8 cores, 32 GB RAM, 1.5 TB storage

Server D: CPU with 4 cores, 16 GB RAM, 1.5 TB storage

If the company wants to configure a failover cluster with all servers, what will be the total number of cores, RAM, and storage available in the failover cluster?

(a) Cores: 22, RAM: 88 GB, Storage: 6 TB

(b) Cores: 22, RAM: 88 GB, Storage: 6.5 TB

(c) Cores: 24, RAM: 88 GB, Storage: 6.5 TB

(d) Cores: 26, RAM: 88 GB, Storage: 5 TB

Answer: (c) Cores: 24, RAM: 88 GB, Storage: 6.5 TB

59. A network administrator needs to configure a DNS server on a Windows Server. The server will host the primary DNS zone for the domain "example.com". The administrator sets the TTL (Time to Live) for DNS records to 3600 seconds. If a client requests an IP address for "www.example.com" from the DNS server, how long will the client's DNS cache retain the IP address information before it expires?

(a) 3600 seconds

(b) 1800 seconds

(c) 7200 seconds

(d) 14400 seconds

Answer: (a) 3600 seconds

60. A company has a subnet with the IP address range 192.168.0.0/24. They need to divide this subnet into smaller subnets to accommodate multiple departments. Each department requires a minimum of 20 IP addresses. What is the maximum number of departments that can be created with the given IP address range?

(a) 4 departments

(b) 6 departments

(c) 8 departments

(d) 10 departments

Answer: (b) 6 departments

61. A company has a virtual private network (VPN) with a total of 50 remote clients connecting to the network using Point-to-Point Tunnelling Protocol (PPTP). Each remote client is assigned a unique IP address from the range 192.168.1.1 to 192.168.1.50. If a new remote client attempts to connect to the VPN and all IP addresses from the range are already assigned, what IP address will the VPN assign to the new client?

(a) 192.168.1.51

(b) 192.168.1.52

(c) 192.168.1.1

(d) 192.168.1.50

Answer: (a) 192.168.1.51

62. In a Windows Server environment, a company has a subnet with the IP address range 192.168.1.0/24. The company needs to allocate 8 subnets, each supporting up to 30 hosts. What is the subnet mask for each of these subnets?

(a) 255.255.255.0

(b) 255.255.255.128

(c) 255.255.255.192

(d) 255.255.255.224

Answer: (d) 255.255.255.224

63. A company's remote employees need to securely access the internal network resources from their home computers. The company decides to set up a VPN (Virtual Private Network) server on a Windows Server. The server's internal IP address is 10.0.0.1. What type of VPN should be configured to allow remote users to connect securely to the internal network?

(a) PPTP (Point-to-Point Tunneling Protocol)

(b) L2TP (Layer 2 Tunneling Protocol)

(c) SSTP (Secure Socket Tunneling Protocol)

(d) IPSec (Internet Protocol Security)

Answer: (c) SSTP (Secure Socket Tunneling Protocol)

64. In PowerShell, which command is used to display a list of all installed Windows features and their status on a Windows Server?

(a) Get-Feature

(b) Get-WindowsFeature

(c) Show-WindowsFeature

(d) List-InstalledFeature

Answer: (b) Get-WindowsFeature

65. Which Linux command is used to display detailed information about the system's CPU, memory, and load average?

(a) top

(b) ps

(c) df

(d) free

Answer: (a) top

66. What is the maximum number of primary partitions that can be created on an MBR disk?

(a) 2

(b) 4

(c) 3

(d) 1

Answer: (b) 4

67. Which command is used to test the reachability of a remote host in a TCP/IP network?

(a) ping

(b) netstat

(c) traceroute

(d) nslookup

Answer: (a) ping

68. How many usable IP addresses are in a subnet with a CIDR notation of /28?

(a) 14

(b) 16

(c) 30

(d) 32

Answer: (a) 14

69. What is the maximum length of a fully qualified domain name (FQDN)?

(a) 63 characters

(b) 128 characters

(c) 255 characters

(d) 512 characters

Answer: (c) 255 characters

70. Which encryption algorithm is used in WPA2 (Wi-Fi Protected Access II) for secure wireless communication?

(a) WEP (Wired Equivalent Privacy)

(b) AES (Advanced Encryption Standard)

(c) DES (Data Encryption Standard)

(d) RC4 (Rivest Cipher 4)

Answer: (b) AES (Advanced Encryption Standard)

71. In Linux, which command is used to change the ownership of a file?

(a) chmod

(b) chown

(c) chgrp

(d) own

Answer: (b) chown

72. Which network protocol is used to securely transfer files between a client and a server over the internet?

(a) FTP (File Transfer Protocol)

(b) HTTP (Hypertext Transfer Protocol)

(c) SSH (Secure Shell)

(d) SNMP (Simple Network Management Protocol)

Answer: (c) SSH (Secure Shell)

73. What is the default port number for DNS (Domain Name System) queries?

(a) 53

(b) 80

(c) 161

(d) 443

Answer: (a) 53

74. Which Windows command is used to view the contents of a text file in the command prompt?

(a) dir

(b) cat

(c) type

(d) view

Answer: (c) type

75. What is the maximum number of interfaces that can be assigned with an IP address on a Cisco device?

(a) 254

(b) 512

(c) 1024

(d) 2048

Answer: (c) 1024

76. Which command is used to enable IPv6 routing on a Cisco IOS device?

(a) ipv6 unicast-routing

(b) ipv6 enable-routing

(c) ipv6 routing

(d) ipv6 forward

Answer: (a) ipv6 unicast-routing

77. In the Cisco IOS CLI, what command can be used to display the IP addresses assigned to all interfaces along with their operational status?

(a) show interfaces brief

(b) show ip interfaces

(c) show ip interface brief

(d) display interfaces

Answer: (c) show ip interface brief

78. What is the default configuration register value on a Cisco router?

(a) 0x2102

(b) 0x2142

(c) 0x2100

(d) 0x2000

Answer: (a) 0x2102

79. Which Cisco IOS command is used to save the running configuration to the startup configuration file?

(a) copy running-config startup-config

(b) save running-config

(c) write memory

(d) copy startup-config running-config

Answer: (c) write memory

80. What is the purpose of the 'banner motd' command in the Cisco IOS?

(a) It sets the message displayed to users after they log in.

(b) It configures the message of the day for the router.

(c) It creates a login banner for the router.

(d) It displays a message when the router enters privileged EXEC mode.

Answer: (a) It sets the message displayed to users after they log in.

81. Which Cisco IOS command is used to view the contents of a specific file stored in the router's file system?

(a) show file

(b) display file

(c) view file

(d) more

Answer: (d) more

82. What is the function of the 'cdp run' command on a Cisco switch?

(a) It enables Cisco Discovery Protocol globally on the switch.

(b) It displays CDP information for neighboring devices.

(c) It configures CDP on specific interfaces.

(d) It starts CDP on the switch when it boots up.

Answer: (a) It enables Cisco Discovery Protocol globally on the switch.

83. On a Cisco router, what is the purpose of the 'ip dhcp excluded-address' command?

(a) It excludes specific IP addresses from being assigned by DHCP.

(b) It reserves specific IP addresses for DHCP clients.

(c) It configures the router as a DHCP relay agent.

(d) It sets the default gateway for DHCP clients.

Answer: (a) It excludes specific IP addresses from being assigned by DHCP.

84. Which Cisco IOS command is used to configure an interface to act as a DHCP client?

(a) dhcp client enable

(b) ip dhcp client

(c) dhcp enable

(d) ip address dhcp

Answer: (d) ip address dhcp

85. In the .NET Framework, the Common Language Runtime (CLR) is responsible for managing memory, executing code, and providing various services. What is the maximum size of an object that can be allocated on the managed heap?

(a) 64 KB

(b) 128 KB

(c) 256 KB

(d) 512 KB

Answr: (b) 128 KB

86. When referring to .NET Core languages, which of the following programming languages is NOT officially supported by Microsoft as a first-class language?

a) C#

b) VB.NET

c) F#

d) TypeScript

Answer: d) TypeScript

87. Which of the following components is responsible for Just-In-Time (JIT) compilation of .NET code into native machine code during runtime?

(a) C# Compiler

(b) Common Language Runtime (CLR)

(c) Intermediate Language (IL) Compiler

(d) .NET Framework Class Library (FCL)

Answer: (b) Common Language Runtime (CLR)

88. .NET Framework supports multiple languages that can be used to build applications. Which language provides direct access to memory pointers and is considered more suitable for low-level tasks?

(a) C#

(b) VB.NET

(c) F#

(d) C++

Answer: (d) C++

89. The .NET Framework includes a security mechanism to prevent unauthorized code from performing sensitive actions. What is the name of this security feature?

(a) Code Access Security (CAS)

(b) Role-Based Security

(c) Windows Authentication

(d) Secure Socket Layer (SSL)

Answer: (a) Code Access Security (CAS)

90. In the context of .NET assemblies, what is the purpose of a manifest?

(a) To provide metadata about the assembly's types and members.

(b) To list all the classes defined within the assembly.

(c) To define the application's entry point.

(d) To specify the permissions required by the assembly to run.

Answer: (d) To specify the permissions required by the assembly to run.

91. In Java, which of the following data types has the highest precision for representing decimal numbers?

(a) float

(b) double

(c) BigDecimal

(d) long

Answer: (c) BigDecimal

92. What will be the output of the following Java code snippet?

java

Copy code

int x = 5;

int y = x++ + ++x;

System.out.println(y);

(a) 10

(b) 11

(c) 12

(d) 13

Answer: (d) 13

93. Which access modifier in Java allows a class to be accessed only within the same package?

(a) public

(b) private

(c) protected

(d) package-private (default)

Answer: (d) package-private (default)

94. What is the output of the following Java code snippet?

java

int i = 0;

while (i++ < 5) {

 System.out.print(i + " ");

}

(a) 1 2 3 4 5

(b) 1 2 3 4 5 6

(c) 1 2 3 4 5 6 7

(d) 0 1 2 3 4 5

Answer: (a) 1 2 3 4 5

95. In Java, what is the size of the boolean data type in bytes?

(a) 1

(b) 2

(c) 4

(d) It depends on the system architecture.

Answer: (d) It depends on the system architecture.

96. In PHP, which of the following variable scopes allows a variable to be accessed inside a function, but not outside of it?

a) Local scope

b) Global scope

c) Static scope

d) Super global scope

Answer: a) Local scope

97. What will be the output of the following PHP code snippet?

$x = 5;

function foo() {

 global $x;

 $x += 10;

}

foo();

echo $x;

(a) 5

(b) 10

(c) 15

(d) 20

Answer: (c) 15

98. In PHP, what is the correct way to define a function with a default argument value?

(a) function myFunction($arg = 1) {}

(b) function myFunction($arg) { $arg = 1; }

(c) function myFunction($arg: 1) {}

(d) function myFunction($arg) { default($arg, 1); }

Answer: (a) function myFunction($arg = 1) {}

99. What is the output of the following PHP code snippet?

$fruits = array('apple', 'banana', 'orange');

array\_push($fruits, 'grape');

echo count($fruits);

(a) 3

(b) 4

(c) 5

(d) 6

Answer: (b) 4

100. In PHP, what is the purpose of the static keyword when used inside a function?

a) It makes the function non-static and callable from outside the class.

b) It retains the value of a variable between multiple function calls.

c) It allows the function to be called without creating an instance of the class.

d) It enables late static binding for the function.

Answer: b) It retains the value of a variable between multiple function calls.