MikroTik Certified Inter-Networking Engineer (MTCINE) DUMPS

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1. In an ECMP route, there are 3 gateways A, B and C. As gateways A and B have been added one time each and C two times.

How many percent of packets will route to gateway C?

A. 50%

B. 25%

C. 30%

D. Unknown, ECMP is not per packet balancer

2. Is it possible to hide topology of MPLS cloud from traceroutes?

A. It depends on how many VPLS tunnels there are in the network

B. Yes, by turning on propagate-ttl option

C. No

D. Yes, by turning off propagate-ttl option

3. It is possible to manage a router by IPv4 address from the interface assigned to VRF

false

4. The OSPF network is configured as on the attached figure. Each of the links has cost sets as on the figure. If we configure redistribution of default route on router A with command:

/routing ospf instance set 0 distribute-default=always-as-type-2 metric-default=5

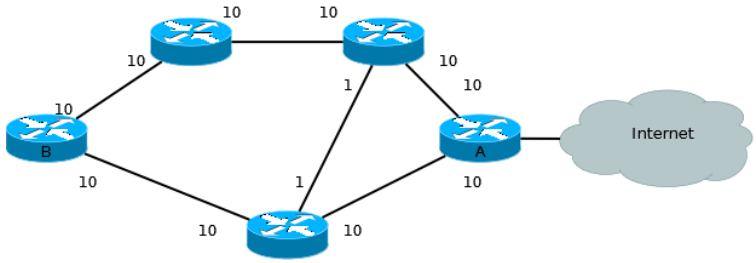
What will be the cost of the default route on router B?

A. 5

B. 35

C. 26

D. 25



5. In case it is not administratively defined, how is OSPF Router ID determined?

A. Random number

B. The lowest IP address of any active interface on the router

C. The highest IP address of any active interface on the router

D. The lowest IP address of any interface included in OSPF

E. Random IP addresses from any interface included in OSPF

F. Random IP address from any interface on the router

G. The highest IP address of any interface included in OSPF

6. Which statements about iBGP are true?

A. nexthop is changed by default

B. requires full mesh between peers

C. requires multihop option enabled if peers are not directly connected

D. AS path is not manipulated

7. Which attribute is considered first, when iBGP determines the best path ?

A. Local Preference

B. Weight

C. Origin

D. AS path length

8. Which algorithm does BGP use?

A. Shortest Path

B. Path Vector

9. Which attribute must be sent in the BGP update packet and must be recognized by all implementations of BGP ?

A. well-known discretionary

B. optional non-transitive

C. optional transitive

D. well-known mandatory

10. Local preference attribute is carried by:

A. both eBGP and iBGP peers

B. iBGP peers

C. eBGP peers

11. iBGP is used between RRs routers. The next-hop is passed as it is.

true

11. In RouterOS VRF tables are technically based on policy routing and:

A. Policy routes resolve next-hops in their own route table by default, while routes in VRF tables always use the main routing table

B. Route lookup process is the same for both of them

C. None of the other statements are correct

D. It is possible to have policy routing within a VRF table

12. Is it possible to forward a Q-in-Q VLAN over VPLS tunnel without fragmenting packets if currently they are being fragmented?

A. Yes, by reducing MTU of inner VLAN interface

B. Yes, by increasing MPLS MTU (if interface allows that)

C. No, packets will be fragmented

13. You are planning the setup of a MPLS network.

Is it possible to have several Layer 2 tunnels created automatically over MPLS cloud?

true

14. What happens with the MPLS label when the packet reaches the last router on the MPLS cloud?

A. MPLS label can be chosen to be removed or not be removed

B. MPLS label is removed

C. MPLS label is not removed

15. There are two routers running OSPF protocol. Two interfaces of both routers are configured to participate in OSPF network. The adjacency of this link cannot be established. Find the reason.

[admin@R1]>

/routing ospf interface print detail

interface=ether1 cost=10 priority=1 authentication=none

authentication-key=\"aaaa\" authentication-key-id=1 network-type=broadcast

instance-id=0 retransmit-interval=5s transmit-delay=1s

hello-interval=10s dead-interval=40s use-bfd=no

[admin@R2]>

/routing ospf interface print detail

interface=ether2 cost=10 priority=1 authentication=none

authentication-key=\"\" authentication-key-id=1 network-type=broadcast

instance-id=0 retransmit-interval=5s transmit-delay=1s

hello-interval=10s dead-interval=30s use-bfd=no

A. Both interfaces should be ether1

B. None of above - the problem appears somewhere else

C. Authentication key mismatch - it should be the same on both routers

D. Dead-interval mismatch - it should be the same on both routers

16. What is Penultimate Hop Popping on the router?

A. Indicates that LER router will receive packet with a popped MPLS label

B. Ensures that the edge router is not making unnecessary label lookups

C. Indicates that VPLS tunnel can be set up between MPLS routers that are multiple hops away

17. A BGP Router that has learned the same route from both an iBGP and an eBGP routing protocol will _always_ prefer the routing provided via iBGP over that via eBGP.

false

18. To support IP packets of 1500 bytes and 3 MPLS labels, the MPLS MTU should be at least:

A. 1512 Bytes.

B. 1506 Bytes.

C. None of the answers are correct

D. 1516 Bytes.

19. In an RSVP TE network, a head-end router can calculate the path to a tail-end router using:

A. Information about the TE network state

B. Properties of the links

C. All the Answers are correct

D. Information about the available bandwidth of the links from the IGP

20. The attribute Next-hop is changed by default in iBGP

false

21. If destination can not be resolved in VRF,

A. the router will try to resolve destination in main routing table.

B. the packet is dropped.

22. What is a BGP route reflector used for?

A. reflects BGP routes to iBGP peers to avoid full mesh between iBGP routers

B. reflects incoming traffic coming from one interface to one or more other interfaces

C. used to mirror configuration from one router to another

23. Which of the following attributes are considered first, when eBGP determines the best path without in-filter manipulations?

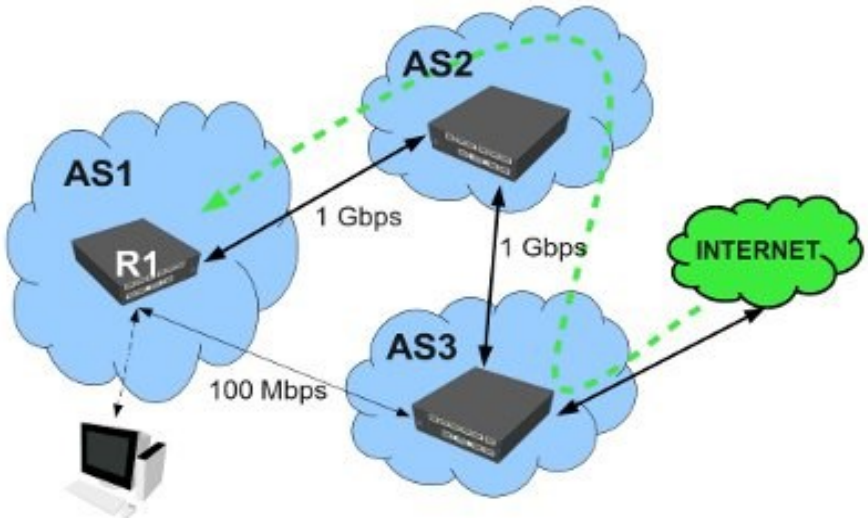
A. Origin

B. As path length

C. Local Preference

24. You are the network administrator in AS1. The R1 router connects your network to the Internet via 1Gbps link to AS2 and 100Mbps link to AS3. You have established simple BGP sessions with your neighbouring AS-es (advertising your network prefix) and your connection to the internet is working. But you observed a problem: all traffic from the internet comes via the slower 100Mbps link from AS3. When the link failed last weekend, all traffic was coming from AS2, using the faster link, and the network performance was better!

Assuming, that you have already configured your router to use routing filter chains as2-out and as3-out for BGP advertisements to AS2 and AS3 and that the chains are empty, which of the following would make the traffic from the internet come via the faster link from AS2, but keeping the redundancy (allowing it to switch to the backup link in case of failure)?



A. [admin@R1] /routing filter> add chain=as3-out action=discard

B. [admin@R1] /routing filter> add chain=as3-out action=accept set-bgp-prepend=3

C. [admin@R1] /routing filter> add chain=as2-out action=accept set-bgp-prepend=1,2

D. [admin@R1] /routing filter> add chain=as2-out action=accept set-bgp-prepend=1

E. [admin@R1] /routing filter> add chain=as2-out action=accept set-bgp-prepend=3

F. [admin@R1] /routing filter> add chain=as3-out action=accept set-bgp-prepend=1,1,1

25. The following command should be issued on the router to enable LDP on the ether1 interface:

A. /mpls ldp interface add interface=ether3

B. /interface add mpls interface=ether1

C. /interface add mpls enabled=yes name=ether1

D. /mpls ldp interface add interface=ether1

26. What is policy routing for and what criteria can be used to decide appropriate route?

A. Policy routing can be used to bypass routing table and is possible only if BGP is enabled.

B. Policy routing can be used to bypass routing table and only active tunnel interfaces can be used to direct traffic alternatively.

C. Policy routing can be used to force specific traffic to go different way through network, but only source and destination address can be used to distinguish traffic.

D. Policy routing can be used to force specific traffic to go different way through network and beside source and destination address any traffic that can be marked in firewall can be used to distinguish traffic.

27. Mark all ECMP (Equal cost multi-path) routes that will split traffic to multiple paths:

A. /ip route add dst-addr=0.0.0.0/0 gateway=10.10.10.1,10.10.10.1,10.20.20.1

B. /ip route add dst-addr=0.0.0.0/0 gateway=10.10.10.1,10.10.10.1

C. /ip route add dst-addr=0.0.0.0/0 gateway=10.10.10.1,10.20.20.1

D. /ip route add dst-addr=0.0.0.0/0 gateway=10.10.10.1

28. Route Distinguisher is used in L3VPN to make IPv4 prefixes unique.

true

29. BGP & Load Balance

ISP "A" has two different physical connections with its upstream provider, ISP "B". ISP "A" wants to load balance its traffic using BGP and ECMP.

Mark all correct statements about some necessary settings to achieve this goal:

A. Static routes should be created to guarantee the reachability between the IP addresses used for BGP peerings.

B. ISP "A" should establish only one eBGP peering using, as remote peer, the IP address of ISP "B" loopback interface.

C. Multihop option should be configured on ISP "A".

D. It's not possible to load balance using BGP and ECMP simultaneously. Some other method such as interface bonding should be used instead.

E. ISP "A" should establish two eBGP peerings using, as remote peers, the IP addresses of ISP "B" physical interfaces.

30. Which of the following ways can traffic be forwarded into TE tunnels in RouterOS:

A. Traffic cannot be forwarded to TE tunnel

B. Using policy routing

C. By setting the remote address of the VPLS pseudowire interface to the same as the TE tunnel remote address

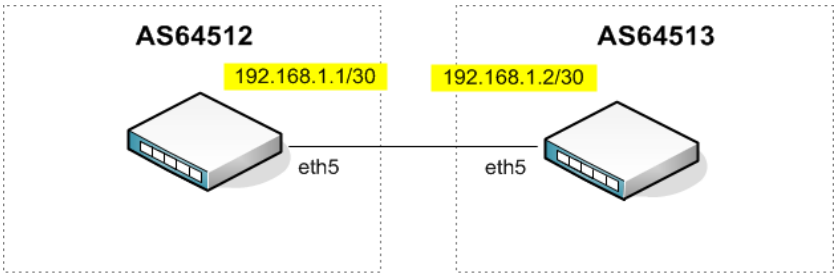
31. Which of the following are Exterior Gateway Protocols?

A. BGP

B. OSPF

C. RIP

32. Please refer to the two router configurations in the diagram and assume that routers can already ping each other. Will routers establish BGP peering?




```
/ip address add address=192.168.1.1/30 disabled=no interface=ether5

/routing bgp instance set default as=64512

/routing bgp peer add remote-as=64513 remote-address=192.168.1.2

/ip firewall filter
add action=drop chain=input connection-state=new disabled=no protocol=tcp
```

```
/ip address add address=192.168.1.2/30 disabled=no interface=ether5

/routing bgp instance set default as=64513

/routing bgp peer add remote-as=64512 remote-address=192.168.1.1
```

A. No, because of BGP instance configuration

B. No, because of BGP peer configuration

C. No, because of firewall filter configuration

D. Yes, BGP peering will be established

33. The target scope can be used for:

A. To configure several routes with different costs and distances

B. To resolve nexthops that are not directly connected to the router

C. To build a FailOver System between two or more gateways

34. How many adjacencies are formed in broadcast subnet with a DR and BDR consisting of 13 routers?

A. 78

B. 13

C. 1

D. 23

35. A BGP router R1 (AS 100) has peerings with 4 upstream providers: AS 200 (Router R2), AS 300 (Router R3), AS 400 (Router R4) and AS500 (Router R5). R1 receives the following BGP NLRI announcements:

a) from R2: Prefix 10.0.0.0/8; Attributes: Next hop = R2 IP address, Origin = incomplete, AS-Path = 200 600 280 120 520 380

b) from R3: Prefix 10.0.0.0/8; Attributes: Next hop = R3 IP address, Origin = igp, AS-Path = 300 380 380 380 380 380 380

c) from R4: Prefix 10.0.0.0/8; Attributes: Next hop = R4 IP address, Origin = incomplete, AS-Path = 400 600 100 380

d) from R5: Prefix 10.0.0.0/8; Attributes: Next hop = R5 IP address, Origin = igp, AS-Path = 500 600 100 380

Which upstream provider R1 will choose to reach 10.0.0.0/8 ?

A. AS 500 (R5)

B. AS 400 (R4)

C. AS 300 (R3)

D. AS 200 (R2)

36. A BGP peer, must be one hop away from our router. That is, a BGP Peer must have layer 2 visibility of our router to establish the BGP connection.

false

37. How many different traffic cases can be carried in an MPLS label?

A. 254

B.7

C. 8

D. 256

38. Traffic engineering tunnels are ..

A. bidirectional

B. always unidirectional

C. depends of the setup

39. Do iBGP routers exchange weight attribute?

false

40. Router has two gateways to reach a certain network both with check gateway activated. Choose the option you can use to control active and backup gateway.

A. Scope

B. Distance

C. Routing mark

D. Interface

41. Is the BGP propagating only the best path to reach the destination?

true

42. If you want to prepend many times your own AS, when announcing routes via EBGP, you have to create a Routing Filter with the set-bgp-prepend attribute, and set it in the...

A. Both In Filter and Out Filter of peer definition.

B. In Filter of peer definition.

C. Out Filter of peer definition.

D. Once the Routing Filter is created, it will act in any peer definition inside the router.

43. In an MPLS label, QoS information can be carried in:

A. Label value itself (20 bits)

B. Experimental (Traffic Class) field (3 bits)

C. Bottom of stack field

D. TTL field

44. If 'check-gateway' is enabled for an ECMP route and one of the gateways is unreachable, then

A. the ECMP route becomes inactive

B. the unreachable gateway is not going be used in Round Robin algorithm

C. ECMP is going to send packets to all gateways even if one is unreachable

45. What is the default distance for iBGP routes?

A. 200

B. 100

C. 30

D.1

46. Confederation AS should not include any other routers without any confederations configuration outside of sub-autonomous system.

true

47. A BGP peer can meet IPv4 or IPv6 standards, but not both.

false

49. Which protocol and port is used for BGP transport?

A. UDP/646

B. UDP/53

C. TCP/646

D. TCP/179

50. If we change TTL to 2 in mangle chain prerouting

A. packet will not be forwarded

B. packet will be forwarded to the next 2 L3 devices

C. packet will always reach its destination

D. packet will be forwarded only to next L3 device

51. OSPF starts working on the router as soon as

A. at least one IP network is assigned in the ospf network menu

B. at least one area is specified in the ospf area menu

C. at least one interface is defined in the ospf interface menu

D. the routing package is enabled on the router

52. Bandwidth of a link participating in an RSVP TE network is set by the Administrator to a higher value than the maximum bandwidth configured for the physical link.

Choose which one of the following is correct:

A. Depending on the bandwidth reserved for tunnels, the link may participate in the RSVP TE network

B. The link will not participate in an RSVP TE network

C. RouterOS does not allow an RSVP TE link value to be set higher than the real bandwidth value of the physical link

53. You can not use OSPF and RIP routing protocols simultaneously on the RouterOS.

false

54. Which of the following are correct statements?

A. OSPF is not a link state protocol

B. If OSPF router ID is not set manually, then the lowest IP address configured on an active interface is used

C. OSPF requires neighbor adjacencies before updates are sent

D. OSPF allows unequal cost load balancing

E. Every OSPF area must connect with area 1

55. Select the correct statements about routing marks:

A. can be assigned by IP firewall mangle chains input and output

B. each packet can have more than one routing mark

C. a packet with a routing mark is ignored by main routing table if there is at least one route for the routing mark

D. check-gateway option is not compatible with routing-mark

56. How does the iBGP router process the next-hop attribute ?

A. iBGP leaves it unchanged

B. Next-Hop attribute can be configured administratively

C. iBGP changes the next-hop to its own address

57. Which protocols can be used to exchange routes between CE and PE?

A. OSPF

B. LDP

C. VRRP

D. BGP

58. Check the correct statements about MPLS

A. MPLS labels are placed before Layer 2 headers

B. An MPLS packet can have more than one label

C. The MPLS label field has 32 bits

D. Using MPLS TE, traffic can be forwarded based on source address

59. ECMP provides:

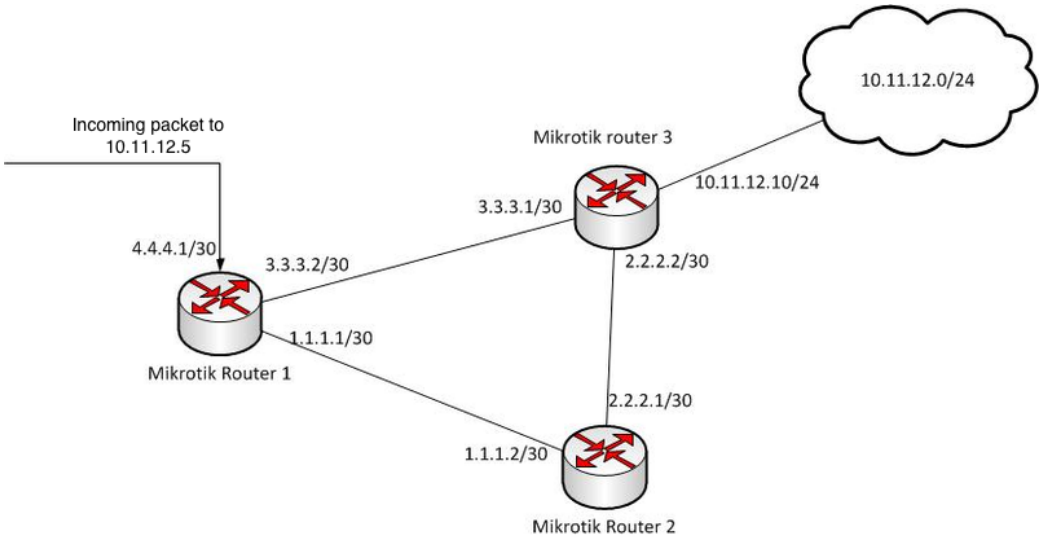
A. per src address load balancing to multiple gateways

B. per packet load balancing to multiple gateways

C. per src/dst address pair load balancing to multiple gateways

D. per connection load balancing to multiple gateways

60. Please see the network diagram.



A packet with destination address 10.11.12.5 passes via MikroTik Router 1. In addition to the connected routes the router has following routes added to the routing table:

MikroTik Router 1:

/ip route add dst-address=10.11.12.0/24 gateway=1.1.1.2

MikroTik Router 2:

/ip route add dst-address=10.11.12.0/24 gateway=2.2.2.2

MikroTik Router 3:

/ip route add dst-address=10.11.12.0/24 gateway=3.3.3.2

What will happen?

A. There will be infinite loop until TTL of packet is equal to 1

B. There will be infinite loop until one of routers is disabled

C. Packet will reach the destination

D. MikroTik Router 3 will discard the packet

61. In OSPF networks, stub areas are responsible for which of the following (check all that apply):

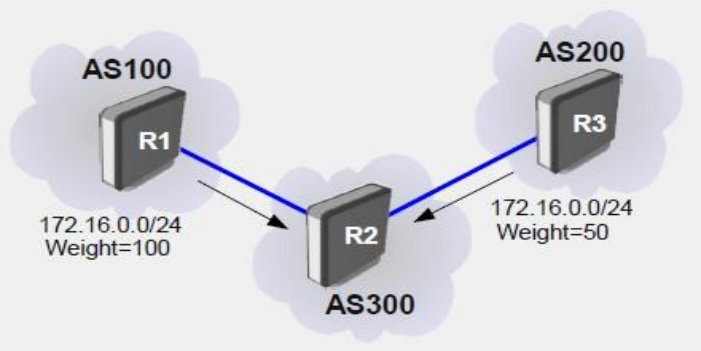
A. Increasing latency in the area

B. Reducing the database size inside the area

C. Reducing the memory requirements of routers in the area

D. Increasing the number of AS external routes

62. About the BGP attribute WEIGHT, we can say:



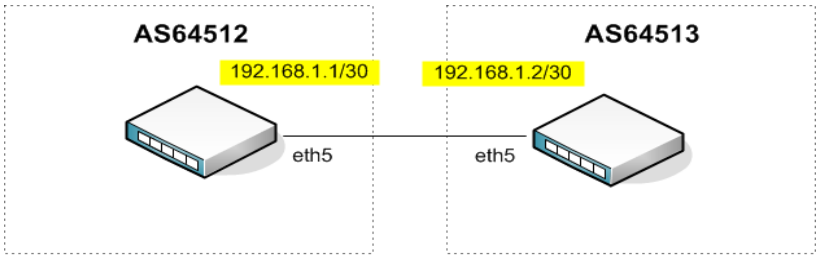
A. The "attribute" Weight is assigned locally to the router and is not propagated by BGP.

B. Prefixes without a weight is assigned the default value 0.

C. The weight affects the downstream traffic.

D. Routes with lower weight are preferred.

63. Please refer to router configuration and assume that routers can ping each other. Is BGP peering possible?




```
/ip address add address=192.168.1.1/30 disabled=no interface=ether5
/routing bgp instance set default as=64512
/routing bgp peer add remote-as=64513
```

```
/ip address add address=192.168.1.2/30 disabled=no interface=ether5
/routing bgp instance set default as=64513
/routing bgp peer add remote-as=64512
```

A. No, because of incorrect BGP peer configuration

B. Yes, BGP peering will be established

C. No, because there is no firewall filter configuration

D. No, because of incorrect BGP instance configuration

64. In an MPLS cloud, what routers forward packets by Label only ?

A. GE

B. P

C. CE

D. PE

E. BGP

F. C

65. Which description regarding OSPF Network LSAs is correct when using broadcast network type?

A. They are originated by Area Border Routers and are sent into a single area to advertise destinations outside that area

B. They are originated by every router in OSPF network. They include all routers on the link, interfaces, the cost of the link, and any known neighbor on the link

C. They are originated by the DR on every multi-access network. They include all attached routers including the DR itself

D. They are originated by Area Border Router and are sent into a single area to advertise an Autonomous System Border Router

66. In OSPF settings, the NBMA Neighbor setting can be used to improve the stability of OSPF across wireless links.

true

67. VPLS can provide transparent Layer 2 connectivity across multiple layer 3 networks.

true

68. Network redundancy over several links (failover) can be achieved by

A. route option "check-gateway"

B. dynamic routing protocols

C. web-proxy

D. policy routing

69. What is the maximum number of MPLS type labels that a packet can have?

A. Not more than 3 (MPLS, VPLS label and CV label)

B. Only one MPLS label

C. More than 4

70. To filter out all networks except 10.0.0.0/24 in MPLS accept filter. Select rules that could be used,

A. /mpls ldp accept-filter

add accept=no disabled=no neighbor=all prefix=10.0.0.0/24

add accept=yes disabled=no neighbor=all prefix=0.0.0.0/0

B. /mpls ldp accept-filter

add accept=yes disabled=no neighbor=all prefix=10.0.0.0/24

add accept=no disabled=no neighbor=all prefix=0.0.0.0/0

C. /mpls ldp accept-filter

add accept=yes disabled=no neighbor=all prefix=0.0.0.0/0

add accept=no disabled=no neighbor=all prefix=10.0.0.0/24

D. /mpls ldp accept-filter

add accept=no disabled=no neighbor=all prefix=0.0.0.0/0

add accept=yes disabled=no neighbor=all prefix=10.0.0.0/24

71. How we can set a different distance to a BGP route in the routing table?

A. By setting up routing filters to change the distance

B. It's impossible to change the distance in a BGP route

C. By setting it manually in the routing table

72. To prevent a traffic loop in a full VPLS network:

A. RSTP must be configured as well as setting horizon value

B. All routers participating in a bridged network must be configured with a common horizon value

C. All VPLS tunnels that are bridged together in the same router must be configured with the same horizon value

D. RSTP can be configured and horizon values do not need to be set

73. MPLS runs at what OSI Layer?

A. layer 2

B. layer 3

C. between layer 2 and layer 3

D. layer 7

E. both layer 1 and layer 2 only

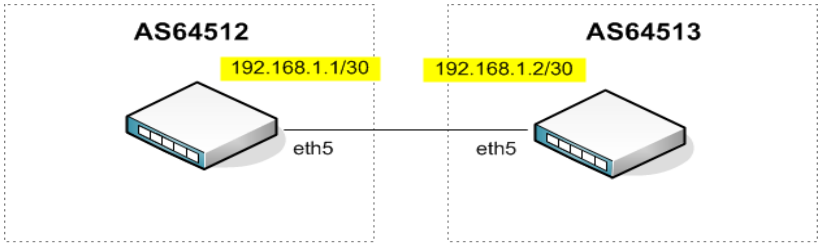
F. between layer 3 and layer 4

G. layer 4

74. BGP can be used for internal routing.

true

75. Please refer to router configuration and assume that routers can ping each other. Is BGP peering possible?

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/ip address add address=192.168.1.1/30 disabled=no interface=ether5

/routing bgp instance set default as=64512

/routing bgp peer add remote-as=64513 remote-address=192.168.1.2

/ip firewall filter
add action=drop chain=input disabled=no protocol=tcp
add action=accept chain=input disabled=no dst-port=179 protocol=tcp \
src-address=192.168.1.2
```

```
/ip address add address=192.168.1.2/30 disabled=no interface=ether5

/routing bgp instance set default as=64513

/routing bgp peer add remote-as=64512 remote-address=192.168.1.1
```

A. No, because of BGP peer configuration

B. No, because of firewall filter configuration

C. Yes, BGP peering will be established

D. No, because of BGP instance configuration

76. RouterOS BGP is configured with 2 peering sessions. You plan to receive approximately 600 000 IPv4 prefixes. There are no other significant memory consuming services configured on the device.

What is the recommended amount of memory necessary to handle this configuration, assuming that there have to remain 15MB of memory unused?

A. 512MB

B. RouterBOARD cannot handle 600 000 prefix entries in routing table.

C. 128MB

D. 64MB

E. 256MB

77. What are the advantages in creating multiple areas in OSPF ? Select all that apply.

A. Fewer hello packets.

B. Smaller routing tables.

C. Fewer adjacencies needed

D. Less frequent SPF calculations.

78. Which of the following AS Numbers are private ?

A. 65500

B. 512

C. 65002

D. 64500

79. In an MPLS network a VPLS tunnel is established between two routers that are not directly connected. Assuming that the default VPLS MTU and the default MPLS MTU is used, select valid L2MTU values (along the LSP) for VPLS tunnel to work properly:

A. 1800 bytes

B. 1512 bytes

C. 8000 bytes

D. 1500 bytes

80. In an OSPF based network, you wish to force one particular router to always be the Designated Router. You should set the priority value of that router to:

A. 1

B. 255

C. 0

81. To assign specific traffic to a route - traffic must be identified by a routing mark. Each packet can only have one routing mark.

true

82. Select all that are correct statements about Traffic Engineering Tunnels

A. Auto bandwidth adjustment can be used in combination with bandwidth limit feature if bandwidth-limit is set to more than 100%

B. auto-bandwidth-reserve parameter indicates the amount of traffic in bps committed to the tunnel

C. RSVP TE tunnels are bidirectional interfaces

D. Traffic engineering needs RSVP protocol enabled on head end, tail end and forwarding routers

83. What is the maximum number of hops, after which the network will be considered unreachable in OSPF?

A. 16

B. 15

C. Unlimited

D. 99

84. Which of the following can connect a remote area in OSPF to the backbone area through a non-backbone area?

A. Backbone Area

B. Internal Router

C. Area Border Router

D. Virtual Links

85. Do iBGP routers exchange weight attribute ?

false

86. MikroTik router needs to forward IP-packet targeted to 11.12.4.5. Router routing table has 3 routes,

1. dst-address=11.12.4.0/24, distance=10, gateway=1.1.1.1

2. dst-address=11.12.4.0/28, distance=20, gateway=1.1.1.2

3. dst-address=0.0.0.0/0, distance=1, gateway=1.1.1.254.

Which of the gateways will router select?

A. 1

B. Nowhere. Host will get "destination host unreachable".

C. 3

D. 2

87. /ip route configuration on router,

/ip route add gateway=192.168.0.1

/ip route add dst-address=192.168.1.0/24 gateway=192.168.0.2

/ip route add dst-address=192.168.2.0/24 gateway=192.168.0.3

/ip route add dst-address=192.168.3.0/26 gateway=192.168.0.4

Router needs to send packets to 192.168.3.240. Which gateway will be used?

A. 192.168.0.2

B. 192.168.0.3

C. 192.168.0.4

D. 192.168.0.1

88. Is it possible to detect remote BGP peer reachability in very short time?

A. Yes, set BGP timeout for 2 seconds.

B. No, BGP requires longer timeout to avoid excessive network topology changes.

C. Yes, use BFD.

89. Confederation AS should not include any other routers without any confederations configuration outside of sub-autonomous system.

true

90. How we can set a different distance to a BGP route in the routing table?

A. By setting up routing filters to change the distance

B. It's impossible to change the distance in a BGP route

C. By setting it manually in the routing table

91. If you want to prepend many times your own AS, when announcing routes via EBGP, you have to create a Routing Filter with the set-bgpprepend attribute, and set it in the...

A. In Filter of peer definition.

B. Once the Routing Filter is created, it will act in any peer definition inside the router.

C. Out Filter of peer definition.

D. Both In Filter and Out Filter of peer definition

92. Local Preference indicates the preferred path to exit AS.

true

93. In BGP, the default route is distributed to other routers by activating the following option

A. Default Originate in the Peer

B. Route Reflect in the Peer

C. Multihop in the Peer