Quality of Service
BGP

Date: Spring
Duration: 50 min.

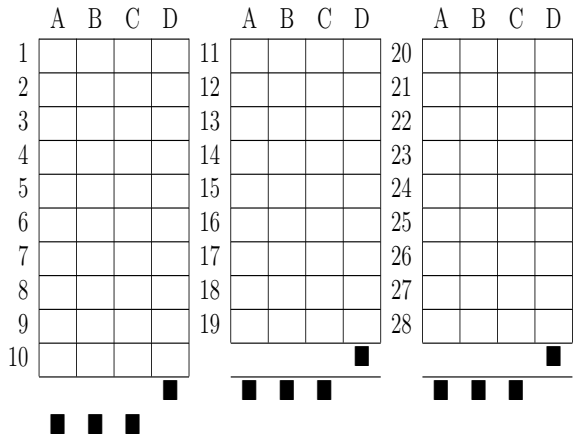
- There is only one correct answer for each multiple choice question.
- Each correct answer adds 1 point.
- Each incorrect answer has a penalty of $\frac{1}{3}$ points.
- No score is awarded for unanswered questions, neither positive nor negative.
- Mark out your answers with an "X". Make sure that the "X" reaches the corners of the rectangle. ⊠
- No score is awarded if you mark more than one answer.
- Pad your NIA with 0s on the left to complete the NIA field.

Write your personal data clearly.

Last name:	
First name:	
Group:	

Permutation: A

NIA:



1.- Where is traffic normally exchanged between ISPs?

(a) In a route reflector.
(b) In transoceanic cables.
(c) In interior routers protocols.
(d) In an Internet Exchange Point.

2.- Does BGP include some kind of security measure to protect itself from forged packets?

(a) No. Security is not required because the TCP protocol is used.
(b) Yes. A shared secret and an MD5 digest can be used for security.
(c) Yes. BGP information is transmitted using the HTTPS protocol.
(d) No, because BGP is only an informative protocol.

3.- BGP uses ...

(a) link state routing.
(b) random routing.
(c) distance vector routing.
(d) path routing.

4.- Which of the following is not a BGP message?

(a) DROP DEFAULT
(b) KEEP-ALIVE
(c) ROUTE-REFRESH
(d) NOTIFICATION

5.- What is BGP used for?

(a) To modify the packets that cross AS borders.
(b) To exchange routes between RIP and OSPF.
(c) To prioritize VoIP calls.
(d) To exchange routes between ASs.

6.- Which of the following announcements can be aggregated?

(a) 172.16.0.0/17 and 172.16.1.0/17 to 172.16.0.0/18.
(b) 172.16.0.0/17 and 172.16.1.0/17 to 172.16.0.0/16.
(c) 172.16.0.0/17 and 172.16.128.0/17 to 172.16.0.0/16.
(d) 172.16.0.0/17 and 172.16.1.0/17 to 172.16.0.0/24.

7.- Why are “sequences” and “sets” allowed in route announcements?

(a) Sequences are for IBGP and sets for EBGP.
(b) To route between IPv4 and IPv6 networks.
(c) To make it possible route aggregation of announcements with different paths.
(d) To support transit ASs and stub ASs.

8.- Why is not possible to use RIP as a border gateway protocol?

(a) BGP is a distance-vector protocol.
(b) BGP minimizes the number of hops.
(c) BGP is a link-state protocol.
(d) BGP has to take into account policy.

9.- Which of the following statements is false regarding peering?

(a) Routes obtained from peers are not relayed to service providers.
(b) A small ISP normally reaches a peering agreement with an international Tier-1 carrier.
(c) ISPs prefer a peering agreement to paying for transit.
(d) A pair of peering AS establish a BGP session to exchange routes.

10.- What is an autonomous system?

(a) A network that is not connected to the Internet.
(b) A network under the same administrative domain.
(c) A network of a country.
(d) A network with more than one BGP router.

11.- An ISP receives routes announcement from one of its clients. To which neighbours are these announcements relayed?

(a) Only to other clients.
(b) Only to other peers.
(c) To all neighbours.
(d) Only to providers.

12.- What does BGP stands for?

(a) Bridge Greening Protocol.
(b) Best Goal Practices.
(c) Biased Genesis Packet.
(d) Border Gateway Protocol.

13.- Does inter-AS routing always follow the shortest path?

(a) No, policy is also taken into account in making routing decissions.

(b) Yes, the path with the smaller number of AS is followed.

(c) Yes, the path with the smaller number of routers is followed.

(d) No, inter-AS routing uses OSPF which includes a link metric to take into account the available bandwidth.

14.- What is BGP used for?

(a) To exchange routes between RIP and OSPF.

(b) To prioritize VoIP calls.

(c) To exchange routes between ASs.

(d) To modify the packets that cross AS borders.

15.- If no reflectors and confederations are not used, what differentiates EBGP and IBGP?

(a) EBGP works at layer-3 and IBGP at layer-2.

(b) Routes learned from EBGP are distributed to all neighbours while routes learned from IBGP are distributed only to EBGP neighbours.

(c) IBGP is used for communication between ASs and EBGP is used for communication within an AS.

(d) EBGP uses TCP and IBGP uses UDP.

16.- What is the DFZ and where it is located?

(a) Default-Free Zone which is located in routers of Tier-1 ISPs.

(b) Demilitarized Friendly Zone which is located in the BGP router that announces the default route.

(c) Demilitarized Friendly Zone which is announed in the RIP protocol.

(d) Default-Free Zone which is located in a home router.

17.- An AS prefers ...

(a) ... to route traffic towards a provider to route traffic towards a peer.

(b) ... to route traffic towards a peer to route traffic towards a client.

(c) ... to route traffict towards a provider to route traffic towards client.

(d) ... to route traffic towards a client to route traffic towards a peer.

18.- How does BGP prevent routing loops?

(a) Using the count-to-infinity mechanism.

(b) By inserting a maximum hop-count in route announcements.

(c) AS reject route announcements that include their ASN in the path.

(d) By means of the split horizon.

19.- A BGP router establishes BGP sessions ...

(a) ... with all the autonomous systems of the Internet.
(b) ... with all the routers of the Internet.
(c) ... with all the BGP routers of the Internet Exchange Point.
(d) ... with those peers that have been selected by the network administrator.

20.- Which of the following is typically not an Autonomous System?

(a) A large multi-homed BGP network connected to two or more ISPs.
(b) A Tier-1 ISP such as Cogent.
(c) A Tier-2 ISP that purchases some IP transit.
(d) A home network with more than three routers.

21.- Which of the following is not an interior gateway routing protocol?

(a) STP.
(b) IS-IS.
(c) OSPF.
(d) RIP.

22.- In an inter-AS transit connection ...

(a) ... the client pays to the service provider.
(b) ... the service provider pays to the client.
(c) ... the AS with more routes pays to the AS with less routes.
(d) ... no payment is made.

23.- Which of the following is a longer prefix?

(a) /8.
(b) /23.
(c) /24.
(d) /16.

24.- How is policing implemented in BGP?

(a) Using route announcements and routing decissions.
(b) Using only routing decissions.
(c) Rejecting all route announcements and making no routing decissions.
(d) Using only route announcements.

25.- Which BGP message is used to send routing information?

(a) NOTIFY.
(b) NEW ROUTE.

(c) HELLO.
(d) UPDATE.

26.- Which transport protocol is used for BGP sessions?

(a) TCP
(b) UDP
(c) RSVP
(d) ICMP

27.- How can you hijack Internet traffic?

(a) By closing all BGP sessions.
(b) By increasing the number of routers in your network.
(c) By announcing a prefix belonging to someone else.
(d) By announcing a prefix of a network of your AS.

28.- What does an AS do when relaying a route announcement?

(a) Remove one AS number from the path.
(b) Duplicate an AS number from the path.
(c) Appending its own AS number in the route path.
(d) Multiply two AS numbers of the path.