1. How does the TTL changed by one each time the datagram is processed by a router? (2.0分)

✓ ● A.decrease

○ B.increase

○ C.no change

○ D.always 0

2. Which of the following protocol doesn't belong to intra-AS routing protocol? (2.0分)

○ A.RIP

✓ ● B.BGP

○ C.OSPF

○ D.IRAP

3. An IP datagram of 1020 bytes (20 byte of IP header plus 1000 bytes of IP payload) arrives at a router and must be forwarded to a link with an MTU of 500 bytes. Thus the router have to fragment the datagram. To the last fragment, the value of offset should be (2.0分)

○ A.960

○ B.1000

○ C.100

✓ ● D.120

4. In BGP, the NEXT-HOP attribute indicates(2.0分)

✓ ● A.the router interface that begins the next AS

○ B.the shortest path between two AS

○ C.the gateway address that has the highest traffic

○ D.the AS ID of the next AS

5. How many bits are there in IPv6? (2.0分)

○ A.32

○ B.64

✓ ● C.128

○ D.256

6. Which of the following sub-network masks is illegal? (2.0分)

✓ ● A.255.255.32.0

○ B.255.255.255.128

○ C.255.255.192.0

○ D.255.255.254.0

7. The broadcast address of network 202.115.32.0/23 is(2.0分)

○ A.202.115.32.255

✓ ● B.202.115.33.255

○ C.202.115.255.255

○ D.202.115.32.0

8. Consider a router with the switching fabric based on sharing memory. The memory access speed (read and write) is B packets per second. The overall forwarding throughput is always (2.0分)

✓ ○ A.greater than B packets per second

○ B.greater than B/2 packets per second

● C.less than B/2 packets per second

○ D.less than $(\sqrt{B})/2$ packets per second

9. In OSPF network, a _____ belongs to both an area and the backbone.(2.0分)

○ A.internal router

✓ ● B.area border router

○ C.boundary router

○ D.backbone router

10. IP is responsible for _____ communication while TCP is responsible for _____ communication.(2.0分)

✓ ● A.host-to-host; process-to-process

○ B.process-to-process; host-to-host

○ C.node-to-node; point-to-point

○ D.point-to-point; node-to-node

11. Which of the following groups run on the top of UDP? (2.0分)

○ A.FTP, ARP, SMTP.

○ B.IMAP, ARP, DNS

✓ ● C.DNS, RTP, RIP

○ D.DNS, POP3, ICMP

12. A _____ packet is delivered to only a subset of network nodes. (2.0分)

○ A.Broadcast

✓ ● B.Multicast

○ C.Any-cast

D.Uni-cast

13. In the loop of the Dijkstra's algorithm, for node x, add y to N', and update the cost of y's neighbor v, then D(v) is _____.(2.0分)

A.c(x, v)

B.min{D(v), D(x)+c(x, v)}

✓ C.min{D(v), D(y)+c(y, v)}

D.c(y, v)

14. In the following four fields, which is in IPV6 header but not in IPV4?(2.0分)

A.source address

B.destination address

C.version

✓ D.flow label

15. Which of following about DV is not correct? (2.0分)

A.Iterative

✓ B.Synchronous

C.Distributed

D.Self-terminating

16. OSPF is a kind of _____ algorithm(2.0分)

A.DV

✓ B.LS

C.Both of above

D.Neither of A and B

17. RIP is a kind of _____ algorithm. (2.0分)

✓ A.DV

B.LS

C.Both of above

D.Neither of A and B

18. Typically a host is attached directly to one router, the _____ for the host. (2.0分)

✓ A.Default router

B.Source router

C.Destination router

D.Core router

19. _____ means that IPv6 nodes also have a complete IPv4 implementation as well?(2.0分)

✓ A.Dual stack

B.Tunneling

C.Bridge connection

D.Forwarding

20. There are three kinds of switch fabric for a router normally, those three switch fabric do not includes_____?(2.0分)

A.Switching via memory

B.Switching via a bus

C.Switching via an Interconnection-Network

✓ D.Packet switching

21. In _____ networking, a series of packet may follow different paths and may arrive out of order?(2.0分)

✓ A.Datagram

B.VC

C.TCP

D.None of above

22. A VC consists of three part, this three parts do not include(2.0分)

A.Path from source to destination

B.VC numbers, one number for each link along path

C.Entries in forwarding tables in routers along path

✓ D.Destination address

23. The internet's network layer provides a single service----that is (2.0分)

A.Reliable data transfer

B.Flow control

C.Congestion control

✓ D.Best-effort-service

24. The standard Tracert program actually sends sets of _____ packets with the same TTL.(2.0分)

A.one

B.two

✓ C.three

D.four

第四次作业周三班（总分：100 ）

25. If all datagrams arriving at the router from WAN have the same destination IP address, then how does the router know the internal host to which it should forward a given datagram? The trick is to use _____ table at router, and include port numbers as well as IP address in the table entries. (2.0分)

- A.routing
- B.forwarding
- C.ARP
- √ D.NAT translation

26. ICMP is used for(2.0分)

- A.Reliable data transfer
- √ B.Error reporting
- C.Flow control
- D.Congestion control

27. Distance Vector Routing Algorithm is newer and has more flexibility and options than Link State Routing Algorithm. (2.0分)

- A.正确
- √ B.错误

28. In IP, CRC is introduced for error detection.(2.0分)

- √ A.正确
- B.错误

29. BGP exchanges link weights.(2.0分)

- A.正确
- √ B.错误

30. Referring to the previous problem, once router 1d learns about x will put an entry (x, I) in its forwarding table. a) Will I be equal to I1 or I2 for this entry? Explain why in one sentence. b) Now suppose that there is a physical link between AS2 and AS4, shown by the dotted line. Suppose router 1d learns that x is accessible via AS2 as well as via AS3. Will I be set to I1 or I2? Explain why in one sentence. c) Now suppose there is another AS, called AS5, which lies on the path between AS2 and AS4 (not shown in diagram). Suppose router 1d learns that x is accessible via AS2 AS5 AS4 as well as via AS3 AS4. Will I be set to I1 or I2? Explain why in one sentence.(6.0分)

（a）I1，因为最短路径从1d到达1c

（b）I2，因为以I2开始的路径更接近下一跳的路由器

（c）I1，因为了I1的开始路径具有最短的AS-PATH

得分:6.0

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参考答案

收起

31. Consider the network shown below. Suppose AS3 and AS2 are running OSPF for their intra-AS routing protocol. Suppose AS1 and AS4 are running RIP for their intra-AS routing protocol. Suppose eBGP and iBGP are used for the inter-AS routing protocol. Initially suppose there is no physical link between AS2 and AS4. a) Router 3c learns about prefix x from which routing protocol: OSPF, RIP, eBGP or iBGP? b) Router 3a learns about prefix x from which routing protocol? c) Router 1c learns about prefix x from which routing protocol? d) Router 1d learns about prefix x from which routing protocol?(6.0分)

（a）eBGP

（b）iBGP

（c）eBGP

（d）iBGP

得分:6.0

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参考答案

收起

32. Answer the following questions for the figure (fig 2.) shown below: a) Suppose we want to add a new host to the LAN at the top (connected to router R1 via interface 223.1.1.3). What is a valid IP address that can be assigned to this new host? b) Suppose we want to the LAN at the top has enough address to support 60 interfaces. Assign the network address to this LAN. Hint: the assignment should take the form a.b.c.d/x(6.0分)

（a）223.1.1.2

（b）223.1.1.0/26

得分:4.0

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参考答案

收起

33. The fig 1 shows a portion of the internet with four autonomous systems,one of which is shown with four routers, each with its own /16 subnet. Note that each of the other ASs has a /8 subnet. a) Assume that AS1 uses a LS algorithm as its intra-AS routing algorithm and each node initially knows the costs to each of its neighbors. Show how node C compute the shortest path to all the other nodes b) Assume that BGP as the inter-AS routing algorithm among these Ases and there are no policy constraints that must be satisfied. Please complete the forwarding table of node C. c) Suppose the link joining router B with AS3 fails, which entries would change, and how would they change?(6.0分)

（a）-表示无穷

```
    C  A  B  D
C   0 13  -  7
CD  0 13 12  7
CDB 0 13 12  7
CDBA 0 13 12 7
```

（b）

(C,A)

(C,D)

(C,C)

(C,D)

(C,A)

(C,D)

(C,D)

（c）到达3.*的项将变成(C,A)

收起

34. Consider the following network. With the indicated link costs, use Dijkstra's shortest-path algorithm to compute the shortest path from x to all network nodes. Show how the algorithm works by computing a table.(6.0分)

得分:**5.0**

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参考答案

-表示无穷大

```
      x y z w v u t s
x      0 6 - 6 8 - - -
xy     0 6 18 6 7 - 15 -
xyv    0 6 18 6 7 10 11 -
xyvu   0 6 18 6 7 10 11 14
xyvut  0 6 16 6 7 10 11 13
xyvuts 0 6 16 6 7 10 11 13
xyvutsw 0 6 16 6 7 10 11 13
xyvutswz 0 6 16 6 7 10 11 13
```

收起

35. Consider a subnet with prefix 101.101.101.64/26. Give an example of one IP address (of from xxx.xxx.xxx.xxx) that can be assigned to this network. Suppose an ISP owns the block of addresses of the form 101.101.128/17. Suppose it wants to create four subnets from this block, with each block having the same number of IP addresses. What are the prefixes (of from a.b.c.d/x) for the four subnets?(6.0分)

得分:**5.0**

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参考答案

101.101.64/28

101.101.80/28

101.101.96/28

101.101.112/28

得分:**4.0**

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参考答案

收起

36. Consider the network with 4 routers in figure 1, with link cost labeled. Assume that a distance vector algorithm with poisoned reverse is used. Assume that each node initially knows only the costs to their neighbors. Assume that the DV algorithm works in a synchronous manner, where all nodes simultaneously receive distance vectors from their neighbors, compute their new distance vectors, and inform their neighbors if their distance vectors have changed.

<!--[if !supportLists]-->a)   <!--[endif]-->Please show the distance entries at the node A (4 points).

<!--[if !supportLists]-->b)   <!--[endif]-->After the DV algorithm converged, the link cost between node A and node D increases from 1 to 10. Once detecting this change, node D has to update its distance vector and inform its new distance vector to C. What's this new distance vector D sends to C?(2 points)

<!--[if !supportLists]-->c)   <!--[endif]-->As soon as C received D's update, C will recalculate its own distance vector. If C has computed a new distance vector, C will inform D this new distance vector. Will C update its distance vector? If so, what's the new distance vector C will send to D?.(3 points)

<!--[if !supportLists]-->d)   <!--[endif]-->Let's assume that the network in Figure. 1 is an autonomous system in the Internet with AS number 0. Node A is the BGP gateway of this AS. Is A the only router in this network that runs BGP and DV algorithm simultaneously? (1 point)

(6.0分)

（a）节点A的表项如下：

ABCD

A0431

B4024

C3202

D1420

（b）6

（c）会传，传过去的是A B C D:6 2 0 2

（d）不是，因为内部的路由器会运行iBGP的算法。

得分:**5.0**

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参考答案

收起

关闭