

Chapter 8 Solutions

Review Questions

1. Which of the following commands is necessary to add IGRP to a router? (Choose all that apply.)
 - a. router rip
 - b. router igrp [autonomous system #]**
 - c. network [major network #]**
 - d. router network igrp
2. What is the administrative distance of RIP?
 - a. 100
 - b. 110
 - c. 120**
 - d. 90
3. Link-state routing protocols _____. (Choose all that apply.)
 - a. use link-state advertisements to notify routers of route changes**
 - b. send routing tables to neighbors
 - c. reach convergence faster than distance-vector routing protocols**
 - d. determine the best path via the hop count algorithm
4. RIP has a maximum hop count of _____.
 - a. 255
 - b. 16
 - c. 15**
 - d. 254
5. Which command enables RIP on a router?
 - a. router network RIP
 - b. router rip**
 - c. router igrp
 - d. router ospf
6. Which command will show the IP routing table of a router?
 - a. show ip route**
 - b. show ip protocol
 - c. debug ip igrp events
 - d. show run
7. Nonroutable protocols are able to pass packets among multiple networks. True or **False**?
8. IGRP can use which of the following as metrics? (Choose all that apply.)
 - a. Hop count**
 - b. Bandwidth**
 - c. Delay**
 - d. Split horizon
9. Which of the following is a routed protocol? (Choose all that apply.)
 - a. NetBEUI
 - b. TCP/IP**
 - c. IPX/SPX**
 - d. RIP
10. Which of the following helps to prevent routing loops? (Choose all that apply.)
 - a. Split horizon**
 - b. Count-to-infinity
 - c. Hold-down timers**

d. Split horizon with poison reverse

11. At which router prompt can you use the `router rip` and `router igrp [autonomous system]` commands?
- a. `routerB#`
 - b. `routerB>`
 - c. `routerB(config)#`**
 - d. `routerB(config-router)#`
12. At which router prompt can you issue the `network [network #]` command?
- a. `routerB#`
 - b. `routerB>`
 - c. `routerB(config)#`
 - d. `routerB(config-router)#`**
13. The `debug ip rip` command can be used in user mode and privileged mode. True or **False**?
14. Which of the following routing protocols can route between autonomous systems? (Choose all that apply.)
- a. IGRP
 - b. RIP
 - c. BGP**
 - d. EGP**
15. What type of routing protocol is used within autonomous systems?
- a. Exterior Gateway Protocols
 - b. TCP/IP
 - c. NetBEUI
 - d. Interior Gateway Protocols**
16. RIP and IGRP both advertise a route to a particular network. Which route will be added to the routing table?
- a. The RIP route
 - b. The IGRP route**
 - c. Both RIP and IGRP routes
 - d. BGP-enhanced IGRP
17. What command is used to display RIP timers?
- a. `show ip route`
 - b. `show run`
 - c. `debug ip rip`
 - d. `show ip protocol`**
18. What two commands are needed to configure RIP on a router? (Choose all that apply.)
- a. `network rip`
 - b. `router rip`**
 - c. `router network rip`
 - d. `network [network #]`**
19. A metric is a variable used to determine the suitability of a route. **True** or False?
20. A major drawback of link-state routing protocols is:
- a. Routing by rumor
 - b. Increased memory and processing required on routers**
 - c. Slow time to convergence
 - d. Inability to adapt to network topology changes
21. Which of the following commands would enable a routing protocol that is only concerned with hop count?
- a. `router# router igrp`
 - b. `router(config)# router igrp`

c. router# router rip

d. router(config)# router rip

e. router# router ospf

22. Which of the following are true about administrative distance? (Choose all that apply.)

a. The higher the administrative distance, the more desirable the route.

b. Administrative distances are used with static routes.

c. The default administrative distance for RIP is 120.

d. The default administrative distance for static routes is higher than those for dynamic routes.

e. The default administrative distance for a connected network is lower than that for the default route of IGRP.

23. What does the number 240 stand for in the following command?

Router(config)# ip route 192.168.1.0 255.255.255.0 240

a. Number of masked bits

b. Decimal subnet mask

c. Number of hops

d. Administrative distance

e. Autonomous network number

24. If you want to monitor real-time RIP traffic, which command would you type?

a. router> router rip

b. router# router rip

c. router# show rip

d. router(config)# show rip

e. router# debug ip rip

25. Which of the following does RIP support? (Choose all that apply.)

a. Load balancing

b. Link reliability metric

c. Bandwidth metric

d. Delay metric

26. What is used on routers to hide intranet IP addresses from the Internet?

a. PAP

b. CHAP

c. NAT

d. FRAT

27. How does NAT deal with multiple internal IP addresses mapping to a single external address?

a. PAP

b. CHAP

c. NAT

d. PAT

28. How does overlapping occur?

a. The network administrator doesn't plan for Internet connectivity.

b. The network administrator uses registered IP addresses without getting permission.

c. Both a and b

d. None of the above

Case Projects

Case Project 1

RIP will only work until Big Tin adds more routers. This is because RIP updates can only traverse 15 routers and their autonomous system already includes 14 routers.

Case Project 2

Hogan's could use IGRP as their Interior Gateway Routing protocol. Considerable WAN bandwidth is still used for updates however; IGRP only broadcasts every 90 seconds instead of 30 like RIP. Bandwidth and delay are the two metrics in use by default when IGRP is configured. Hogan's may also want to configure IGRP to use hops. Suggest that Hogan's sets the maximum number of hops to the number of routers in the autonomous system. IGRP can support up to 255 hops.

Case Project 3

The router rip command is configured at the global configuration mode prompt. In this case that prompt would appear as `newyork(config)#`. Once the router rip command is entered, the prompt will change to `newyork(config-router)#`. Jennifer is unnecessarily configuring three network commands instead of the one required. Only the major network number should be configured; subnet numbers (or interface addresses) should not be configured. The one network command should be `network 204.207.5.0`. If it is configured with three commands as Jennifer suggests, the router will simply combine the commands and configure for the major network number only. In other words, it will work, but Jennifer will get it wrong on the CCNA exam.

Case Project 4

The four types of NAT are static, dynamic, dynamic NAT with overload, and PAT.

Static NAT uses a one-to-one mapping of inside to outside addresses. An inside address on a particular host will always be using the same outside address.

With dynamic NAT, outside addresses are assigned dynamically from a pool of addresses. The administrator doesn't really care which outside IP address a host is assigned.

Dynamic NAT with overloading is a form of NAT that allows translation of internal private IP addresses to public IP addresses with the addition of port information. In essence, it is PAT to an IP address that is not configured on a physical interface.

Port Address Translation translates between private internal IP addresses to a public external IP address with the addition of port information. PAT uses the IP address on the external physical interface for translation.