

# MULTIPLE CHOICE QUESTIONS IN DATA COMMUNICATIONS AND NETWORKING

## A Complete Chapter Quiz

### Network Layer: Logical Addressing

Compilation of all the quizzes (MCQs) for each and every chapters in the book of Data Communications and Networking 4th Edition by Behrouz A. Forouzan.

1. Identify the class of the following IPv4 address: 4.5.6.7.

- A) A
- B) B
- C) C
- D) none of the above

2. What is the first address of a block of classless addresses if one of the addresses is 12.2.2.76/10?

- A) 12.0.0.0
- B) 12.2.0.0
- C) 12.2.2.2
- D) none of the above

3. In IPv6, the \_\_\_\_\_ address is generally used by a normal host as a unicast address.

- A) provider-based unicast
- B) link local
- C) site local
- D) none of the above

4. Find the number of addresses in a block of classless addresses if one of the addresses is 12.2.2.7/24.

- A) 32
- B) 64
- C) 256
- D) none of the above

5. The number of addresses in a class C block is \_\_\_\_\_.

- A) 65,534
- B) 16,777,216
- C) 256
- D) none of the above

6. In classless addressing, the prefix length defines the \_\_\_\_\_.

- A) netid
- B) hostid
- C) mask
- D) none of the above

D) none of the above

7. What is the result of ANDing 255 and 15?

- A) 255
- B) 15
- C) 0
- D) none of the above

8. In IPv6, \_\_\_\_\_ address defines a single computer.

- A) a unicast
- B) a multicast
- C) an anycast
- D) none of the above

9. What is the result of ANDing 254 and 15?

- A) 254
- B) 14
- C) 0
- D) none of the above

10. An IPv6 address can have up to \_\_\_\_\_ colons.

- A) 8
- B) 7
- C) 4
- D) none of the above

11. Which address could be the beginning address of a block of 16 classless addresses?

- A) 2.4.6.5
- B) 2.4.6.15
- C) 2.4.6.62
- D) none of the above

12. Identify the class of the following IPv4 address: 229.1.2.3.

- A) A
- B) B
- C) D
- D) none of the above

13. What is the default mask for class A in CIDR notation?

- A) /9
- B) /8**
- C) /16
- D) none of the above

14. What is the first address of a block of classless addresses if one of the addresses is 12.2.2.127/28?

- A) 12.2.2.0
- B) 12.2.2.96
- C) 12.2.2.112**
- D) none of the above

15. What is the default mask for class B in CIDR notation?

- A) /9
- B) /8
- C) /16**
- D) none of the above

16. Identify the class of the following IPv4 address: 191.1.2.3.

- A) A
- B) B**
- C) C
- D) none of the above

17. In IPv6, a \_\_\_\_\_ address is used if a site with several networks uses the Internet protocols but is not connected to the Internet for security reasons.

- A) link local
- B) site local**
- C) mapped
- D) none of the above

18. In IPv6, \_\_\_\_\_ address defines a group of computers.

- A) a unicast
- B) a multicast**
- C) an anycast
- D) none of the above

D) none of the above  
19. The number of addresses assigned to an organization in classless addressing \_\_\_\_\_.

- A) can be any number
- B) must be a multiple of 256
- C) must be a power of 2**
- D) none of the above

20. Find the number of addresses in a block of classless addresses if one of the addresses is 12.2.2.7/30.

- A) 2
- B) 4**
- C) 8
- D) none of the above

21. In IPv6, \_\_\_\_\_ address defines a group of computers with addresses that have the same prefix.

- A) a unicast
- B) a multicast
- C) an anycast**
- D) none of the above

22. An organization is granted a block of classless addresses with the starting address 199.34.76.128/29. How many addresses are granted?

- A) 8**
- B) 16
- C) 32
- D) none of the above

23. An organization is granted a block of classless addresses with the starting address 199.34.76.64/28. How many addresses are granted?

- A) 8
- B) 16**
- C) 32
- D) none of the above

24. An organization is granted a block; one address is 2.2.2.64/20. The organization needs 10 subnets. What is the subnet prefix length?

- A) /20
- B) /24**
- C) /25
- D) none of the above

25. What is the default mask for class C in CIDR notation?

- A) /24**
- B) /8
- C) /16
- D) none of the above

26. In hexadecimal colon notation, a 128-bit address is divided into \_\_\_\_\_ sections, each \_\_\_\_\_ hexadecimal digits in length.

- A) 8: 2
- B) 8: 3
- C) 8: 4**
- D) none of the above

27. In a block, the mask is 255.255.192.0; what is the prefix length?

- A) /20
- B) /28
- C) /18**
- D) none of the above

28. An organization is granted a block of classless addresses with the starting address 199.34.32.0/27. How many addresses are granted?

- A) 8
- B) 16
- C) 32**
- D) none of the above

29. Which one is not a contiguous mask?

- A) 255.255.255.254

B) 255.255.224.0

**C) 255.148.0.0**

D) all are

30. To make addresses more readable, IPv6 specifies \_\_\_\_\_ notation.

- A) dotted decimal
- B) hexadecimal colon**
- C) both a and b
- D) none of the above

31. In a block, the prefix length is /15; what is the mask?

- A) 255.254.0.0**
- B) 255.255.255.0
- C) 255.255.255.128
- D) none of the above

32. An IPv6 address can have up to \_\_\_\_\_ hexadecimal digits.

- A) 16
- B) 32**
- C) 8
- D) none of the above

33. In IPv6, a \_\_\_\_\_ address is an address of 96 bits of zero followed by 32 bits of IPv4 address.

- A) link local
- B) site local
- C) mapped
- D) none of the above**

34. In classless addressing, the \_\_\_\_\_ is the varying part (similar to the hostid).

- A) suffix**
- B) prefix
- C) hostid
- D) none of the above

35. Which address could be the beginning address of a block of 256 classless addresses?

- A) 2.4.6.5

- B) 2.4.6.15  
C) 2.4.6.0  
D) none of the above
36. What is the result of ANDing 0 and 15?  
A) 255  
B) 15  
C) 0  
D) none of the above
37. What is the first address of a block of classless addresses if one of the addresses is 12.2.2.76/27?  
A) 12.2.2.0  
B) 12.2.2.32  
C) 12.2.2.64  
D) none of the above
38. An IPv4 address consists of \_\_\_\_\_ bits.  
A) 4  
B) 8  
C) 32  
D) 64
39. In classless addressing, the \_\_\_\_\_ is another name for the common part of the address range.  
A) suffix  
B) prefix  
C) netid  
D) none of the above
40. An IPv6 address is \_\_\_\_\_ bits long.  
A) 32  
B) 64  
C) 128  
D) none of the above
41. The number of addresses in a class A block is \_\_\_\_\_.  
A) 65,534

- B) 16,777,216  
C) 256  
D) none of the above
42. What is the last address of a block of classless addresses if one of the addresses is 12.2.2.6/30?  
A) 12.2.2.2  
B) 12.2.2.6  
C) 12.2.2.7  
D) none of the above
43. Which address could be the beginning address of a block of 32 classless addresses?  
A) 2.4.6.5  
B) 2.4.6.16  
C) 2.4.6.64  
D) none of the above
44. In IPv6, a \_\_\_\_\_ address is used if a LAN uses the Internet protocols but is not connected to the Internet for security reasons.  
A) link local  
B) site local  
C) mapped  
D) none of the above
45. What is the result of ANDing 192 and 65?  
A) 192  
B) 65  
C) 64  
D) none of the above
46. In IPv4, class \_\_\_\_\_ has the greatest number of addresses in each block.  
A) A  
B) B  
C) C  
D) D

47. The first address assigned to an organization in classless addressing \_\_\_\_\_.

- A) \_\_\_\_\_ must be a power of 4
- B) \_\_\_\_\_ must be evenly divisible by the number of addresses
- C) \_\_\_\_\_ must belong to one of the A, B, or C classes
- D) \_\_\_\_\_ none of the above

48. In IPv6, a \_\_\_\_\_ address comprises 80 bits of zero, followed by 16 bits of one, followed by the 32-bit IPv4 address.

- A) link local
- B) site local
- C) mapped
- D) none of the above

49. The number of addresses in a class B block is \_\_\_\_\_.

- A) 65,536
- B) 16,777,216
- C) 256
- D) none of the above

50. What is the last address of a block of classless addresses if one of the addresses is 12.2.2.127/28?

- A) 12.2.2.16
- B) 12.2.2.112
- C) 12.2.2.127
- D) none of the above

51. In IPv6, the \_\_\_\_\_ prefix defines the purpose of the address.

- A) type
- B) purpose
- C) both a and b
- D) none of the above

52. In a block, the prefix length is /24; what is the mask?

- A) 255.255.255.0
- B) 255.255.242.0
- C) 255.255.0.0
- D) none of the above

53. An IPv6 address consists of \_\_\_\_\_ bytes (octets);

- A) 4
- B) 8
- C) 16
- D) none of the above

54. An organization is granted a block; one address is 2.2.2.64/25. If the subnet prefix length is /28, what is the maximum number of subnets?

- A) 2
- B) 4
- C) 8
- D) none of the above