

**United College of Engineering and Research, Allahabad**

**Department of Computer Science & Engineering**

**B.Tech CSE- VI Semester**

**Set-3**

**Course Name:** Computer Network

**AKTU Course Code:** KCS-603

1. Which of the following field in IPv4 datagram is not related to fragmentation?
  - a) Flags
  - b) Offset
  - c) TOS
  - d) Identifier
  
2. The TTL field has value 10. How many routers (max) can process this datagram?
  - a) 11
  - b) 5
  - c) 10
  - d) 1
  
3. If the value in protocol field IPv4 datagram is 17, the transport layer protocol used is \_\_\_\_\_
  - a) TCP
  - b) UDP
  - c) ICMP
  - d) IGMP
  
4. What should be the flag value to indicate the last fragment?
  - a) 0
  - b) 1
  - c) TTL value
  - d) Protocol field value
  
5. Which of these is not applicable for IP protocol?
  - a) is connectionless
  - b) offer reliable service
  - c) offer unreliable service
  - d) does not offer error reporting

6. Which field helps to check rearrangement of the fragments?
  - a) offset
  - b) flag
  - c) ttl
  - d) identifier
7. First address in a block is used as network address that represents the \_\_\_\_\_
  - a) Class Network
  - b) Entity
  - c) Organization
  - d) Codes
8. The size of an IP address in IPv6 is \_\_\_\_\_
  - a) 32 bytes
  - b) 128 bits
  - c) 64 bytes
  - d) 100 bits
9. The header length of an IPv6 datagram is \_\_\_\_\_
  - a) 10bytes
  - b) 20 bytes
  - c) 30bytes
  - d) 40bytes
10. In IPv6 addresses, addresses that start with eight 0's are called \_\_\_\_\_
  - a) Unicast addresses
  - b) Multicast addresses
  - c) Any cast addresses
  - d) Reserved addresses
11. Which statement(s) about IPv6 addresses are true?
  - a) Leading zeros are required
  - b) Two colons (::) are used to represent successive hexadecimal fields of zeros
  - c) Two colons (::) are used to separate fields
  - d) A single interface cannot have multiple IPv6 addresses of different types
12. Which of the following is the broadcast address for a Class B network ID using the default subnetmask?
  - a) 172.16.10.255
  - b) 255.255.255.255
  - c) 172.16.255.255
  - d) 172.255.255.255

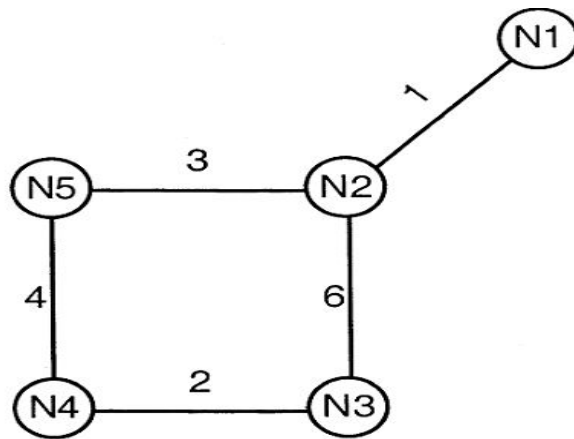
13. You have an IP address of 172.16.13.5 with a 255.255.255.128 subnet mask. What is your class of address, subnet address, and broadcast address?
- a) Class A, Subnet 172.16.13.0, Broadcast address 172.16.13.127
  - b) Class B, Subnet 172.16.13.0, Broadcast address 172.16.13.127
  - c) Class B, Subnet 172.16.13.0, Broadcast address 172.16.13.255
  - d) Class B, Subnet 172.16.0.0, Broadcast address 172.16.255.255
14. If you wanted to have 12 subnets with a Class C network ID, which subnet mask would you use?
- a) 255.255.255.252
  - b) 255.255.255.255
  - c) 255.255.255.240
  - d) 255.255.255.248
15. The combination of \_\_\_\_\_ and \_\_\_\_\_ is often termed the local address of the local portion of the IP address.
- a) Network number and host number
  - b) Network number and subnet number
  - c) Subnet number and host number
  - d) Host number
16. Which two statements describe the IP address 10.16.3.65/23?
- i. The subnet address is 10.16.3.0 255.255.254.0.
  - ii. The lowest host address in the subnet is 10.16.2.1 255.255.254.0.
  - iii. The last valid host address in the subnet is 10.16.2.254 255.255.254.0.
  - iv. The broadcast address of the subnet is 10.16.3.255 255.255.254.0.
- a) i and iii
  - b) ii and iv
  - c) i, ii and iv
  - d) ii, iii and iv
17. What is the maximum number of IP addresses that can be assigned to hosts on a local subnet that uses the 255.255.255.224 subnet mask?
- a) 14
  - b) 15
  - c) 16
  - d) 30
18. You need to subnet a network into 5 subnets, each with at least 16 hosts. Which classful subnet mask would you use?
- a) 255.255.255.192
  - b) 255.255.255.224

- c) 255.255.255.240
- d) 255.255.255.248

19. You have a network that needs 29 subnets while maximizing the number of host addresses available on each subnet. How many bits must you borrow from the host field to provide the correct subnet mask?
- a) 2
  - b) 3
  - c) 4
  - d) 5
20. What is the subnet id of a host with an IP address 172.16.66.0/21?
- a) 172.16.36.0
  - b) 172.16.48.0
  - c) 172.16.64.0
  - d) 172.16.0.0
21. The network address of 172.16.0.0/19 provides how many subnets and hosts?
- a) 7 subnets, 30 hosts each
  - b) 8 subnets, 8,190 hosts each
  - c) 8 subnets, 2,046 hosts each
  - d) 7 subnets, 2,046 hosts each
22. Which of the following transport layer protocols is used to support electronic mail?
- (A) SMTP
  - (B) IP
  - (C) TCP
  - (D) UDP
23. In the IPv4 addressing format, the number of networks allowed under Class C addresses is
- (A)  $2^{14}$
  - (B)  $2^7$
  - (C)  $2^{21}$
  - (D)  $2^{24}$
24. An Internet Service Provider(ISP) has the following chunk of CIDR-based IP addresses available with it: 245.248.128.0/20. The ISP wants to give half of this chunk of addresses to Organization A, and a quarter to Organization B, while retaining the remaining with itself. Which of the following is a valid allocation of addresses to A and B?
- (A) 245.248.136.0/21 and 245.248.128.0/22
  - (B) 245.248.128.0/21 and 245.248.128.0/22
  - (C) 245.248.132.0/22 and 245.248.132.0/21

(D) 245.248.136.0/22 and 245.248.132.0/21

25. Consider a network with five nodes, N1 to N5, as shown below.



The network uses a Distance Vector Routing Distance Vector Routing protocol. Once the routes have stabilized, the distance vectors at different nodes are as following.

N1:(0, 1, 7, 8, 4)

N2:(1, 0, 6, 7, 3)

N3:(7, 6, 0, 2, 6)

N4:(8, 7, 2, 0, 4)

N5:(4, 3, 6, 4, 0)

Each distance vector is the distance of the best known path at that instance to nodes, N1 to N5, where the distance to itself is 0. Also, all links are symmetric and the cost is identical in both directions. In each round, all nodes exchange their distance vectors with their respective neighbours. Then all nodes update their distance vectors. In between two rounds, any change in cost of a link will cause the two incident nodes to change only that entry in their distance vectors.

The cost of link N2-N3 reduces to 2 (in both directions). After the next round of update what will be the new distance vector at node, N3?

(A) (3, 2, 0, 2, 5)

(B) (3, 2, 0, 2, 6)

(C) (7, 2, 0, 2, 5)

(D) (7, 2, 0, 2, 6)

26. After the update in the previous question, the link N1-N2 goes down. N2 will reflect this change immediately in its distance vector as cost,  $\infty$ . After the NEXT ROUND of update, what will be cost to N1 in the distance vector of N3?

(A) 3

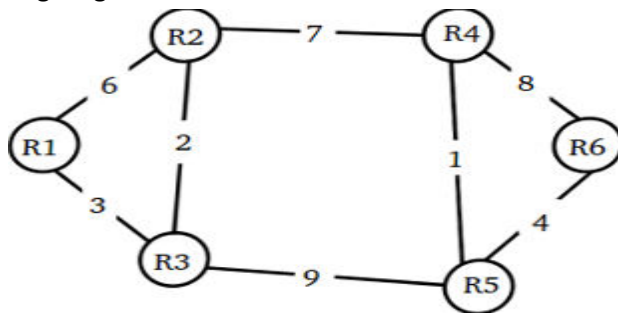
(B) 9

(C) 10

(D)  $\infty$

27. One of the header fields in an IP datagram is the Time to Live (TTL) field. Which of the following statements best explains the need for this field?
- (A) It can be used to prioritize packets
  - (B) It can be used to reduce delays
  - (C) It can be used to optimize throughput
  - (D) It can be used to prevent packet looping
28. Suppose computers A and B have IP addresses 10.105.1.113 and 10.105.1.91 respectively and they both use the same netmask N. Which of the values of N given below should not be used if A and B should belong to the same network?
- (A) 255.255.255.0
  - (B) 255.255.255.128
  - (C) 255.255.255.192
  - (D) 255.255.255.224

29. Consider a network with 6 routers R1 to R6 connected with links having weights as shown in the following diagram



- All the routers use the distance vector based routing algorithm to update their routing tables. Each router starts with its routing table initialized to contain an entry for each neighbour with the weight of the respective connecting link. After all the routing tables stabilize, how many links in the network will never be used for carrying any data?
- (A) 4
  - (B) 3
  - (C) 2
  - (D) 1
30. Suppose the weights of all unused links in the previous question are changed to 2 and the distance vector algorithm is used again until all routing tables stabilize. How many links will now remain unused?
- (A) 0
  - (B) 1
  - (C) 2
  - (D) 3

## Answer

1- c	2- c	3- b	4- a	5- b	6- d	7- c	8- b	9- d	10- d
11- b	12- c	13- b	14- c	15- c	16- b	17- d	18- b	19- d	20- c
21- b	22- c	23- c	24- a	25- a	26- c	27- d	28- d	29- c	30- b