**CHAPTER 4: NETWORK LAYER**

1.        Which of the following groups belongs to network layer protocol? \_\_\_\_\_D\_\_\_\_

A.      IP, TCP and UDP

B.       ARP, IP, and UDP

C.       FTP, IMAP and IP

D.      ICMP, BGP, and RIP

2.        The 3-PDU is named as \_\_\_\_C\_\_\_\_\_

A.      message

B.       packet

C.       datagram

D.      segment

3.        In a datagram network, the forwarding decision is based on the value of the \_\_\_\_B field in the packet header.

A.      source address

B.       destination address

C.       label

D.      None of the choices are

4.        HOL blocking happens on \_\_\_\_A\_\_\_\_\_

A.      input port

B.       output port

C.       switching fabrics

D.      all of above

5.        If no free buffers in router, the arriving packets will be: A

A.      dropped

B.       queued

C.       returned

D.      marked

6.        During normal IP packet forwarding at a router, which of the following packet fields are updated? \_\_\_\_C\_\_\_\_

A.      Source IP address

B.       Destination IP address

C.       Checksum

D.      Destination port number

7.        Which of the following IP address doesn’t belong to the 202.115.32.0/25 network? \_\_\_\_\_\_D\_\_\_

A.      202.115.32.1

B.       202.115.32.11

C.       202.115.32.120

D.      202.115.32.129

8.        You are given an IP network of 192.168.5.0 and told that you need to separate this network into sub networks that can support a maximum of 30 hosts per subnet. This will help alleviate congestion on the network. What subnet mask can you use to create the subnets necessary to meet the given criteria? \_\_\_C\_\_\_\_\_\_

A.      255.255.255.0

B.       255.255.255.128

C.       255.255.255.224

D.      255.255.255.240

9.        An IP datagram of 1500 bytes (20 byte of IP header plus 1480 bytes of IP payload) arrives at a router and must be forwarded to a link with an MTU of 500 bytes. Thus the router has to fragment the datagram. To the last fragment, the value of offset should be \_\_\_\_\_D\_\_\_\_

A.      1440

B.       1000

C.       186

D.      180

10.    IP is a \_\_\_\_C\_\_\_\_\_ protocol.

A.      connection-oriented unreliable

B.       connection-oriented reliable

C.       connectionless unreliable

D.      connectionless reliable

11.    Which ICMP message type is the basis for the Traceroute utility?B

A.      Echo Request

B.       TTL expired

C.      Host Unreachable

D.     Fragment Reassembly Time Exceed

12.    Routers in the path are not allowed to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_B\_\_\_\_\_\_\_\_\_\_.

A.      fragment the packet they receive

B.      change source or destination address

C.       decapsulate the packet

D.     All of the choices are correct

13.    \_\_\_\_B\_\_\_\_\_ allows a site to use a set of private addresses for internal communication and a set of global Internet addresses for communication with the rest of the world.

A.      DHCP

B.       NAT

C.       ICMP

D.      None of the choices are correct

14.    How many bits are there in IPv6 ? \_\_\_\_\_\_C\_\_\_

A.      32

B.       64

C.       128

D.      256

15.    In CIDR notation, which of the following networks contains host 192.168.14.2?C

A.      192.168.10.0/22

B.       192.168.11.0/21

C.       192.168.12.0/23

D.      192.168.13.0/24

16.    What is the limited broadcast address corresponding to the node with the following IP address: 131.15.46.59?D

A.      131.15.46.255

B.       131.15.255.255

C.       255.255.255.255

D.      None of the above

17.    In classful IP addressing, how many network bits does 125.140.128.16 have?A

A.      8

B.       16

C.       24

D.      32

18.    What is the broadcast IP address for 193.140.141.128 / 26 ?D

A.      193.140.141.128

B.       193.140.141.127

C.       255.255.255.63

D.      193.140.141.191

19.    What’s a network? From IP address perspective they can physically reach each other without intervening router and the device interfaces with:  C

A.      same IP address

B.       same TCP port #

C.       same network part of IP address

D.      same host part of IP address

20.    The Internet’s network layer has three major components, the first component is the IP protocol, the second component is the routing protocol, the final component is\_\_\_\_.D

A.      forwarding

B.       address translation

C.       check

D.      ICMP

21.    IP addressing assigns an address to 223.10.198.250/29, the network address for this network is\_\_\_\_.A（   ）

A.      223.10.198.248

B.       223.10.198.250

C.       223.10.198.0

D.      223.10.0.0

22.    There are two 16-bit integers: 1110 0110 0110 0110, 1101 0101 0101 0101. Their checksum isA\_\_\_\_.

A.      0100010001000011

B.       1011101110111100

C.       1111111111111111

D.      1000000000000000

23.    The use of hierarchy in routing tables can \_\_A\_\_\_\_\_\_ the size of the routing tables.

A.      reduce

B.       increase

C.       neither reduce nor increase

D.        None of the choices are correct

24.    Which of the following protocol doesn’t belong to intra-AS routing protocol? \_\_\_\_\_B\_\_\_\_

A.      RIP

B.       BGP

C.       OSPF

D.      IRAP

25.    Which of the following protocol belongs to intra-AS routing protocol? \_\_\_\_\_\_A\_\_\_

A.      RIP

B.       BGP

C.       DV (Distance Vector)

D.      LS (Link State)

26.    In OSPF network, a \_\_\_\_B\_\_\_\_\_ belongs to both an area and the backbone.

A.      internal router

B.       area border router

C.       boundary router

D.      backbone router

27.    \_A\_\_\_ is an inter-domain routing protocol using path vector routing.

A.      BGP

B.       RIP

C.       OSPF

D.      None of the choices are correct

28.    RIP uses the services of \_\_\_C\_\_\_\_.

A.      TCP

B.       IP

C.       UDP

D.      None of the choices are correct

29.    The Routing Information Protocol (RIP) is an intra-domain routing based on \_\_\_\_\_\_\_A\_\_ routing.

A.      distance vector

B.       link state

C.       path vector

D.      all of the above

30.    Which of the following algorithm has the so called count-to-infinity problem?C

A.      Flooding algorithm

B.       Link-state algorithm

C.       Distance vector algorithm

D.      None of the above