**CHAPTER 3: TRANSPORT LAYER**

1.        A transport-layer protocol provides for logical communication between \_\_\_C\_.

A.      Routers

B.       Hosts

C.       Application processes

D.      End systems

2.        Transport-layer protocols run in \_\_D\_\_.

A.      Servers

B.       Clients

C.       Routers

D.      End systems

3.        In transport layer, the send side breaks application messages into \_\_\_B\_, passes to network layer.

A.      Frames

B.       Segments

C.       Data-grams

D.      bit streams

4.        The receive side of transport layer reassembles segments into messages, passes to \_\_A\_\_layer.

A.      Application

B.       Networking

C.       Physical

D.      MAC

5.        Services provided by transport layer include \_\_C\_\_.

A.      HTTP and FTP

B.       TCP and IP

C.       TCP and UDP

D.      SMTP

6.        Which of the following services is not provided by TCP?D

A.      In-order data transfers

B.       Reliable data transfers and flow controls

C.       Congestion controls

D.      Delay guarantees and bandwidth guarantees

7.        These two minimal transport-layer services----\_\_\_A\_ and \_\_\_\_----are the only two services that UDP provides

A.      process-to-process data delivery, error checking

B.       congestion control, reliable data transfer

C.       flow control, congestion control

D.      In-order data transfer, error checking

8.        UDP offers which of the following benefits relative to TCP?C

A.      UDP guarantees that Individual packets of a transmission will arrive “in order”

B.       UDP supports a self-regulating “throttle” feature that prevents network saturation

C.       UDP consumes fewer computer resources by not maintaining connection state

D.      None of the above

9.        Which of the following applications normally uses UDP services?B

A.      SMTP

B.       Streaming multimedia

C.       FTP

D.      HTTP

10.    The job of gathering data chunks, encapsulating each data chunk with header information to create segments and passing the segments to the network is called \_\_A\_\_.

A.      multiplexing

B.       de-multiplexing

C.       forwarding

D.      routing

11.    This job of delivering the data in a transport-layer segment to the correct socket is called \_B\_\_\_.

A.      multiplexing

B.       de-multiplexing

C.       forwarding

D.      routing

12.    Port number’s scope is \_\_\_B\_ to \_\_\_\_.

A.      0, 1023

B.       0, 65535

C.       0, 127

D.      0,255

13.    The port numbers ranging from \_\_C\_\_to \_\_\_\_ are called well-known port number and are restricted.

A.      0, 127

B.       0, 65535

C.       0, 1023

D.      0,255

14.    The UDP header has only four fields, they are\_\_A\_\_.

A.      Source port number, destination port number, length and checksum

B.       Source port number, destination port number, source IP and destination IP

C.       source IP, destination IP, source MAC address and destination MAC address

D.      source IP, destination IP, sequence number and ACK sequence number

15.    The field of Length in UDP segment specifies the length of \_\_\_B\_.

A.      the UDP segment, not including the header

B.       the UDP segment, including the header

C.       the UDP segment’s header

D.      the Length field

16.    Which of the following about TCP connection is not correct?A

A.      It is a broadcast connection

B.       It is a point-to-point connection

C.       It is a pipelined connection

D.      It is a full duplex connection

17.    In the following four descriptions about MSS and MTU, which one is not correct?C

A.      The MSS is typically set by MTU

B.       The MSS is the maximum size of the TCP segment including headers

C.       The MSS is the maximum amount of application-layer data in the segment

D.      The MTU means the largest link-layer frame

18.    \_\_A\_\_ is the byte stream number of first byte in the segment.

A.      Sequence number

B.       ACK number

C.       Checksum

D.      port number

19.    \_\_B\_\_ is the byte sequence numbers of next byte expected from other side.

A.      Sequence number

B.       ACK number

C.       Checksum

D.      port number

20.    In the following four options, which one is correct?D

A.      Suppose that the last SampleRTT in a TCP connection is equal to 1 sec. Then the current value of TimeoutInterval will necessarily be≤1 sec

B.       The timeout should be less than the connection’s RTT

C.       Suppose that the last SampleRTT in a TCP connection is equal to 1 sec. Then the current value of TimeoutInterval will necessarily be≥1 sec

D.      The variations in the SampleRTT are smoothed out in the computation of the EstimatedRTT

21.    There are two 16-bit integers: 1110 0110 0110 0110, 1101 0101 0101 0101. Their checksum is\_\_A\_\_.

A.      0100010001000011

B.       1011101110111100

C.       1111111111111111

D.      1000000000000000

22.    Suppose host A sends host B one TCP segment with sequence number 418, acknowledgement number 571, and 4 bytes of data. Then the sequence number in the acknowledgement to this segment is \_\_\_\_\_C\_\_\_\_

A.      422                             B. 418                 C. 571                      D. 575

23.    Because TCP only acknowledges bytes up to the first missing byte in the stream, TCP is said to provide\_\_D\_\_.

A.      positive ACKs

B.       Selective acknowledgements

C.       3 duplicate ACKs

D.      Cumulative acknowledgements

24.    If we define N to be the window size, base to be the sequence number of the oldest unacknowledged packet, and next-seq-num to be the smallest unused sequence number, then the interval [nextseqnum,base+N-1] corresponds to packet that \_\_A\_\_.

A.      can be sent immediately

B.       have already been transmitted and acknowledged

C.       cannot be used

D.      have been sent but not yet acknowledged

25.    Which of the following is not a pipelining protocol.A

A.      Rdt1.0

B.       Go-Back-N

C.       Selective repeat

D.      TCP

26.    What is the main difference between stop-and-wait and pipelined reliable data transfer protocol?B

A.      The pipelined protocol uses the NAK packets, whereas in the stop-and-wait protocol senders always wait for ACK packets.

B.       With the pipelined protocol, the sender can send several packets in row, whereas in the stop-and-wait protocol the sender cannot send the packets in row.

C.       With the pipelined protocol, the receiver must send one ACK for several packets (cumulative ACK), whereas in the stop-and-wait protocol the receiver can not send the cumulative ACK.

D.      The pipelined protocol uses timeouts, whereas the stop-and-wait protocol does not use the timeout.

27.    Fast retransmit means in the case that \_\_D\_\_ duplicate ACK-s are received, the TCP sender resend segment before timer expires.

A.      6

B.       5

C.       4

D.      3

28.    \_\_B\_\_ is a speeding-matching service---matching the rate which the sender is sending against the rate at which the receiving application is reading.

A.      congestion control

B.       flow control

C.       sliding-window control

D.      variable control

29.    TCP provides flow control by having the sender maintain a variable called the \_\_D\_\_.

A.      buffer

B.       Congestion window

C.       Sliding window

D.      Receive window

30.    Provided RcvBuffer = 20, LastByteRcvd = 20, LastByteRead = 15, then RcvWindow=\_\_B\_\_.

A.      14

B.       15

C.       16

D.      10

31.    In the following four descriptions about TCP connection management, which one is not correct?D

A.      Either of the two processes participating in a TCP connection can end the connection

B.       If the FIN bit is set to 1, it means that it wants to close the connection

C.       In the first two step of the three-way handshake, the client and server randomly choose an initial sequence number

D.      In the three segments of the three-way handshake, the SYN bit must be set to 1

32.    How does TCP sender perceive congestion?D

A.      Through a timeout event

B.       Through a receiving duplicate ACK-s event

C.       Both A and B

D.      Either A or B

33.    There are two states in TCP congestion control, which are \_C\_\_\_.

A.      safe start and congestion abandon

B.       safe start and congestion avoidance

C.       slow start and congestion avoidance

D.      slow start and congestion abandon

34.    In TCP, the timeout interval is a function of:A

A.      estimated RTT at the sender          B. MSS and the overhead of a segment

B.       the size of buffer at the receiver                    D. the size of sending window

35.    In a TCP connection, there is timeout event when the value of threshold is 32 and the size of congestion window is 16. According to the TCP congestion control policy, the new value of threshold and the new size of congestion window should be  \_\_\_\_\_\_C\_\_, respectively.

A.      16, 8                    B.  24, 8                   C.  8, 1                     D.  16, 1