计算机网络期中复习题

Chapter 1

1. The （ ） is a worldwide computer network, that is, a network that interconnects millions of computing devices throughout the world.

    A   public Internet   B   Intranet   C   switch net   D   television net

2. Which kind of media is not a guided media? （ ）

    A   twisted-pair copper wire   B   a coaxial cable

    C   fiber optics   D   digital satellite channel

3. Which kind of media is a guided media? （ ）

    A   geostationary satellite   B low-altitude satellite

    C   fiber optics   D wireless LAN

4. The units of data exchanged by a link-layer protocol are called （ ）.

    A   Frames   B   Segments   C   Datagrams   D bit streams

5. Which of the following option belongs to the circuit-switched networks? （ ）

    A   FDM   B   TDM   C   VC networks   D   both A and B

6. （ ） makes sure that neither side of a connection overwhelms the other side by sending too many packets too fast.

    A   Reliable data transfer   B   Flow control

    C   Congestion control   D   Handshaking procedure

7. （ ） means that the switch must receive the entire packet before it can begin to transmit the first bit of the packet onto the outbound link.

    A   Store-and-forward transmission   B   FDM

    C   End-to-end connection   D   TDM

8. Datagram networks and virtual-circuit networks differ in that （ ）.

    A   datagram networks are circuit-switched networks, and virtual-circuit networks are packet-switched networks.

    B   datagram networks are packet-switched networks, and virtual-circuit networks are circuit-switched networks.

    C   datagram networks use destination addresses and virtual-circuit networks use VC. numbers to forward packets toward their destination.

    D   datagram networks use VC. numbers and virtual-circuit networks use destination addresses to forward packets toward their destination.

9. In the following options, which one is not a guided media? （ ）

    A   twisted-pair wire   B   fiber optics   C   coaxial cable   D   satellite

10. Processing delay does not include the time to （ ）.

    A   examine the packet's header

    B   wait to transmit the packet onto the link

    C   determine where to direct the packet

    D   check bit-error in the packet

11. In the following four descriptions, which one is correct? （ ）

    A   The traffic intensity must be greater than 1.

    B   The fraction of lost packets increases as the traffic intensity decreases.

    C   If the traffic intensity is close to zero, the average queuing delay will be close to zero.

    D   If the traffic intensity is close to one, the average queuing delay will be close to one.

12. The Internet's network layer is responsible for moving network-layer packets known as （ ） from one host to another.

    A   frame   B datagram   C   segment   D   message

13. The protocols of various layers are called （ ）.

A　the protocol stack　　　　B　TCP/IP　　　　C　ISP　　　　D　network protocol

14．There are two classes of packet-switched networks: (　　) networks and virtual-circuit networks.

A　datagram　　　　B　circuit-switched　　　　C　television　　　　D telephone

15．Access networks can be loosely classified into three categories: residential access, company access and (　　) access.

A　cabled　　　　B　wireless　　　　C　campus　　　　D city area

Question 16～17

Suppose, *a* is the average rate at which packets arrive at the queue, *R* is the transmission rate, and all packets consist of *L* bits, then the traffic intensity is (16), and it should no greater than (17).

16．A　LR/a　　　　B　La/R　　　　C　Ra/L　　　　D　LR/a

17．A　2　　　　B　1　　　　C　0　　　　D　-1

18．In the Internet, the equivalent concept to end systems is (　　).

A　hosts　　　　B　servers　　　　C　clients　　　　D　routers

19．In the Internet, end systems are connected together by (　　).

A　copper wire　　　　B　coaxial cable　　　　C　communication links　　　　D　fiber optics

20．End systems access to the Internet through its (　　).

A　modems　　　　B　protocols　　　　C　ISP　　　　D　sockets

21．End systems, packet switches, and other pieces of the Internet, run (　　) that control the sending and receiving of information within the Internet.

A　programs　　　　B　processes　　　　C　applications　　　　D　protocols

22．There are many private networks, such as many corporate and government networks, whose hosts cannot exchange messages with hosts outside of the private network. These private networks are often referred to as (　　).

A　internets　　　　B　LAN　　　　C　intranets　　　　D　WAN

23．The internet allows (　　) running on its end systems to exchange data with each other.

A　clients applications　　　　B　server applications

C　P2P applications　　　　D　distributed applications

24．The Internet provides two services to its distributed applications: a connectionless unreliable service and () service.

A　flow control　　　　B　connection-oriented reliable

C　congestion control　　　　D　TCP

25．It defines the format and the order of messages exchanged between two or more communicating entities, as well as the actions taken on the transmission and/or receipt of a message or other event. The sentence describes (　　).

A　Internet　　　　B　protocol　　　　C　intranet　　　　D　network

26．In the following options, which does not define in protocol? (　　)

A　the format of messages exchanged between two or more communicating entities

B　the order of messages exchanged between two or more communicating entities

C　the actions taken on the transmission of a message or other event

D　the transmission signals are digital signals or analog signals

27．In the following options, which is defined in protocol? (　　)

A　the actions taken on the transmission and/or receipt of a message or other event

B　the objects exchanged between communicating entities

C　the content in the exchanged messages

D　the location of the hosts

28．In the following options, which does not belong to the network edge? (　　)

A　end systems　　　　B　routers　　　　C　clients　　　　D　servers

29．In the following options, which belongs to the network core? (　　)

A　end systems　　　　B　routers　　　　C　clients　　　　D　servers

30. In the following options, which is not the bundled with the Internet's connection-oriented service? (　)
   A   reliable data transfer   B   guarantee of the transmission time
   C   flow control   D   congestion-control

31. An application can rely on the connection to deliver all of its data without error and in the proper order. The sentence describes (　).
   A   flow control   B   congestion-control
   C   reliable data transfer   D   connection-oriented service

32. It makes sure that neither side of a connection overwhelms the other side by sending too many packets too fast. The sentence describes (　).
   A   flow control   B   congestion-control
   C   connection-oriented service   D   reliable data transfer

33. It helps prevent the Internet from entering a state of gridlock. When a packet switch becomes congested, its buffers can overflow and packet loss can occur. The sentence describes (　).
   A   flow control   B   congestion-control
   C   connection-oriented service   D   reliable data transfer

34. The Internet's connection-oriented service has a name, it is (　).
   A   TCP   B   UDP   C   TCP/IP   D   IP

35. In the following options, which service does not be provided to an application by TCP?(　)
   A   reliable transport   B   flow control
   C   video conferencing   D   congestion control

36. The Internet's connectionless service is called (　).
   A   TCP   B   UDP   C   TCP/IP   D   IP

37. In the following options, which does not use TCP?(　)
   A   SMTP   B   internet telephone
   C   FTP   D   HTTP

38. In the following options, which does not use UDP?(　)
   A   Internet phone   B   video conferencing
   C   streaming multimedia   D   telnet

39. There are two fundamental approaches to building a network core, (　) and packet switching.
   A   electrical current switching   B   circuit switching
   C   data switching   D   message switching

40. In (　) networks, the resources needed along a path to provide for communication between the end system are reserved for the duration of the communication session.
   A   packet-switched   B   data-switched
   C   circuit-switched   D   message-switched

41. In (　) networks, the resources are not reserved; a session's messages use the resources on demand, and as a consequence, may have to wait for access to communication link.
   A   packet-switched   B   data-switched
   C   circuit-switched   D   message-switched

42. In a circuit-switched network, if each link has n circuits, for each link used by the end-to-end connection, the connection gets (　) of the link's bandwidth for the duration of the connection.
   A   a fraction $1/n$ B   all   C   1/2   D   n times

43. For (　), the transmission rate of a circuit is equal to the frame rate multiplied by the number of bits in a slot.
   A   CDMA   B   packet-switched network   C   TDM   D   FDM

44. (　) means that the switch must receive the entire packet before it can begin to transmit the first bit of the packet onto the outbound link.

    A   Queuing delay   B   Store-and-forward transmission

    C   Packet loss   D   Propagation

45．The network that forwards packets according to host destination addresses is called (   ) network.

    A   circuit-switched   B   packet-switched

    C   virtual-circuit   D   datagram

46．The network that forwards packets according to virtual-circuit numbers is called (   ) network.

    A   circuit-switched   Bpacket-switched

    C   virtual-circuit   D   datagram

47．In the following entries, which is not a kind of access network?(   )

    A   residential access   B   company access

    C   wireless access   D   local access

48．Suppose there is exactly one packet switch between a sending host and a receiving host. The transmission rates between the sending host and the switch and between the switch and the receiving host are R_1 and R_2, respectively. Assuming that the switch uses store-and-forward packet switching, what is the total end-to-end delay to send a packet of length L? (Ignore queuing delay, propagation delay, and processing delay.) (   )

    A $L/R_1＋L/R_2$ B L/R_1

    C L/R_2 D   none of the above

49．The time required to examine the packet's header and determine where to direct the packet is part of the (   ).

    A   queuing delay   B   processing delay

    C   propagation delay   D   transmission delay

50．The time required to propagate from the beginning of the link to the next router is (   ).

    A   queuing delay   B   processing delay

    C   propagation delay   D   transmission delay

51．Consider sending a packet of 3000bits over a path of 5 links. Each link transmits at 1000bps. Queuing delays, propagation delay and processing delay are negligible.

(1).Suppose the network is a packet-switched virtual circuit network. VC setup time is 0.1 seconds. Suppose the sending layers add a total of 500 bits of header to each packet. How long does it take to send the file from source to destination?

(2).Suppose the network is a packet-switched datagram network and a connectionless service is used. Now suppose each packet has 200 bits of header. How long does it take to send the file?

(3).Suppose that the network is a circuit-switched network. Further suppose that the transmission rate of the circuit between source and destination is 200bps. Assuming 0.02s setup time and 200 bits of header appended to the packet, how long does it take to send the packet?

Chapter 2

1. In the following four descriptions, which one is correct?

    A   In C/S architecture, clients communicate with each other directly.

    B   In C/S architecture, client has a fixed well-known address.

    C   In P2P architecture, peers communicate with each other directly.

    D   In P2P architecture, peer has a fixed well-known address.

2. In the context of a communication session between a pair of process, the process that initiates the communication is labeled as the _____ , the process that waits to be contacted to begin the session is labeled as the _____ .

    A   client process, server process   B   sending process, receiving process

    C   input process, output process   D   communicating process, connecting process

3. A socket is the interface between _____ within a host.

    A   the network layer and the link layer

    B   the link layer and the physical layer

    C   the application layer and the transport layer

    D   the transport layer and the network layer

4. In the following applications, which one is a loss-tolerant application?

    A   E-mail   B   file transfer   C   instant messaging   D   real-time audio

5. In the following applications, which one is a bandwidth-sensitive application?

    A   E-mail   B   web application   C   real-time audio   D   file transfer

6. The service of TCP can't guarantee _____ .

    A   delivery of all data without error   B   delivery of all data in the proper order

    C   the rate of delivery   D   congestion control

7. In the following applications, which one uses UDP?

    A   E-mail   B   web application   C   file transfer   D   DNS

8. In the following descriptions about HTTP, which one is not correct?

    A   HTTP uses non-persistent connections in its default mode.

    B   HTTP uses TCP as its underlying transport protocol.

    C   HTTP is a stateless protocol.

    D   HTTP is client-server architecture.

9. Suppose a web page consists of a base HTML file, 5 JEPG images and a java applet, and also suppose HTTP uses persistent connection without pipelining, the total response time is _____ .

    A   2RTT   B   8RTT   C   12 RTT   D   14RTT

10. In HTTP response message, if the requested HTTP protocol   version is not supported, the status code is _____ .

    A   200   B   301   C   400   D   505

11. The port number of web application is _____ .

    A   25   B   20   C   80   D   53

12. A network entity that satisfies HTTP requests on the behalf of an origin web server is _____ .

    A   server farm   B   server stack   C   proxy server   D   edge server

13. In the following descriptions about persistent connection, which one is not correct?

    A   The server leaves the TCP connection open after sending a response.

    B   Each TCP connection is closed after the server sending one object.

    C   There are two versions of persistent connection: without pipelining and with pipelining.

    D   The default mode of HTTP uses persistent connection with pipelining.

14. FTP uses two parallel TCP connections to transfer a file, there are _____.

    A   control connection and data connection

    B   receiving connection and sending connection

    C   client connection and sever connection

    D   program connection and process connection

15. In the following descriptions about FTP, which one is correct?

    A   FTP is p2p architecture.   B   FTP sends its control information out-of-band.

    C   FTP uses persistent connection.   D   FTP is a stateless protocol.

16. In the commands of FTP, which one does not have parameter?

    A   USER   B   PASS   C   LIST   D   STOR

17. The Internet mail system has three components which they are _____.

    A   user agent, SMTP, POP3   B   SMTP, POP3, IMAP

    C   user agent, SMTP, IMAP   D   user agent, SMTP, mail server

18. If the status code in HTTP response message is 404, it means _____ .

    A   Request succeeded.

B   The requested document doesn't exit on this server.

C   This is a generic error code indicating that the request could not be understood by the server.

D   Requested object has been permanently mover.

19. Comparison HTTP with SMTP, the correct is _____ .

A   HTTP is a push protocol, and SMTP is a pull protocol.

B   In the default mode, both of them use persistent connection.

C   HTTP places all of the message's objects into one message, and SMTP sends every object one by one.

D   HTTP requires each message to be in 7-bit ASCII format, and SMTP doesn't impose this restriction.

20. The headers in the MIME message must include except _____ .

A   From   B   Content-type   C   Content-transfer-encoding   D MIME version

21. In the following protocol, which one is stateless?

A   POP3   B   SMTP   C   FTP   D   IMAP

22. DNS means_____ .

A   Data Name System   B   Data National System

C   Domain Name System   D   Domain National System

23. There are three classes of DNS server except _____ .

A   Root DNS server   B   Local DNS server

C   TLD server   D   Authoritative DNS server

24. DNS provides some services except _____ .

A   Host aliasing   B Mail server aliasing

C   Load distribution   D   A single point of failure

25. There are three architectures for locating content in P2P file sharing, KaZaA uses   .

A   Centralized Directory （Napster）   B   Query Flooding(Gnutella)

C   Exploiting Heterogeneity   D   Incentive Priorities

26. There are three architectures for locating content in P2P file sharing, Napster uses   .

A   Centralized Directory   B   Query Flooding

C   Exploiting Heterogeneity   D   Incentive Priorities

27. The following   architectures in P2P file sharing, which is an overlay network?

A   Centralized Directory   B   Query Flooding(p139)

C   Exploiting Heterogeneity   D   Incentive Priorities

28. The time it takes for a small packet to travel from client to server and then back to the client is _____ .

A   round-travel time   B   next-hop time

C   round-trip time   D   prefix-matching time

29. Suppose A (with a Web-based e-mail account) sends a message to B (who accesses his mail server using POP3), which application-layer protocol is not used?

A   HTTP   B   SMTP   C   POP3   D   IMAP

30. In the four following options, which protocol is included in Mail Access Protocol?

A   SMTP   B   DHCP   C   IMAP   D   FTP

31. In FTP commands,   is used to send user password to the server.

A   User   B   Pass   C   Retr   D   Stor

32. The function of the additional header field in MIME Content-Type is _____ .

A   to convert the message body to its origin non-ASCII form

B   to determine what actions it should take on message body

C   to send an E-mail to the receiving user agent

D   to indicate what type the message is

33. In the four following options, which application is organized as hybrid of C/S and P2P architecture?

A   E-mail   B   OICQ   C   File transfer   D   Web application

34. In the four following options, which is not a centralized DNS design's problem?

A   a single point of failure   B   traffic volume   C   distant centralized database   D   slow

35.   In the following options, from the application developer's perspective, which is not correct?

A   the network architecture is fixed

B   the network architecture provides a specific set of services to applications

C   the application architecture is designed by the physical devices

D   the application architecture dictates how the application is organized over the various end systems

36. There are three predominant architectures used in modern network applications, which one is not included?

A   the client-server architecture   B   the P2P architecture

C   a hybrid of the client-server and P2P architecture

D   a hybrid of the client-server and browser-server architecture

37. In the following options about C/S architecture, which is not correct?

A   In C/S architecture, there is an always-on host, called the server.

B   In C/S architecture, there is an always-on host, called the client.

C   The server has a fixed, well-known address, called IP address.

D   Clients do not directly communicate with each other.

38. _____ are   often used to create a powerful virtual server in C/S architecture.

A   Peers   B   Server farm   C   server stack   D   local server   hostname

39. A process sends messages into, and receives messages from, the network through its _____ .

A   socket   B   program   C   client   D   peer

40. Which one is not defined by an application-layer protocol?

A   the types of messages exchanged

B   the syntax of various message types

C   the semantics of the fields

D   rules for determining when and how to translate the socket

41. HTTP can use two types of connections, which are _____ .

A   persistent and non-persistent connection

B   connection with pipelining and without pipelining

C   TCP and UDP

D   parallel and serial connection

42. _____ takes for a small packet to travel from client to server and then back to the client.

A   RDT   B   threshold   C   RTT   D   overhead

43. The default mode of HTTP uses _____ .

A   non-persistent connection with pipelining

B   non-persistent connection without pipelining

C   persistent connection with pipelining

D   persistent connection without pipelining

44. In HTTP request messages, the request line has three fields, there are _____.

A   the method field, the URL field and the HTTP version field

B   the method, the connection and URL field

C   the user-agent, the method and HTTP version field

D   the user-agent, the URL and the HTTP version field

45. In the header lines of HTTP request message, if the field of Connection is close, it specifies _____.

A   the host on which object resides

B   what type of the user agent

C   that the browser wants the server to close the connection after sending the requested object

D   which language can the browser receive

46. In HTTP response message, if the status code is 404, it means _____ .

A   request succeeded and the information is returned in the response

B   requested object has been permanently moved

C   the requested HTTP protocol version is not supported by the server

D   the requested document does not exist on this server

47. _____ is a network entity that satisfies HTTP requests on the behalf of an origin Web server.

A   proxy server   B   local server   C   DNS server   D   Web server

48. In the following four options about web cache, which one is not correct?

A   A web cache is both a server and a client at the same time.

B   A web cache is purchased and installed by an ISP.

C   A web cache can raise the response time for a client request.

D   A web cache can reduce traffic on an institution's access link to the Internet.

49. The request message in the conditional GET must include the _____ header line.

A   Last-Modified   B   Last-Referenced

C   If-Modified-Since   D   If –Referenced-Since

50. FTP uses two parallel connections to transfer a file, they are _____ .

A   TCP and UDP connection

B   connection with pipelining and without pipelining

C   control an data connection

D   client-server and browser-server connection

51. In FTP commands, which one is used to ask the server to send back a list of all files in the current remote directory?

A   USER   B   PASS   C   LIST   D   RETR

52. In the Internet mail system, _____ allow users to read, reply to, forward, save and compose message.

A   User agents   B   mail servers   C   SMTP   D   TCP

53. The two key MIME headers for supporting multimedia are _____ .

A   Content-Type and MIME-Version

B   Content-Type and Content-Transfer-Encoding

C   Content-Transfer-Encoding and MIME-Version

D   MIME-Version and MIME-Type

54. For Internet mail, the mail access protocol is used to _____ .

A   transfer mail from the recipient's mail server to the recipient's user agent

B   transfer mail from the sender's mail server to the recipient's mail server

C   translate the mail from the sender's mail server

D   translate the mail into the recipient's mail server

55. POP3 progresses through three phases, which they are _____ .

A   authorization, translation and transaction

B   authorization, translation and update

C   authorization, transaction and update

D   translation, transaction and update

56. In the following four services, which one can not provide by DNS?

A   Host aliasing   B   Mail server aliasing

C   translate hostname to IP addresses

D   translate MAC addresses to IP addresses

57. There are three classes of DNS servers, there are _____ .

A   root DNS server, top-level domain DNS server and local DNS server

B   root DNS server, top-level domain DNS server and authoritative DNS server

C   root DNS server, local DNS server and authoritative DNS server

D   root DNS server, local DNS server and top-level domain DNS server

58. In the following four options about POP3, which one is not correct?

A   The user agent employed only three commands: List, Retr and Quit

B   The server does not carry state information across POP3 sessions

C   The port number is 110

D   The POP3 protocol does not provide any means for a user to create remote folders and assign messages to folders.

59. A resource record in DNS distributed database is a four-tuple, which field can be ignored?

A   Name   B   Value   C   Type   D   TTL

60. In the following four options about DNS resource record, which one is correct?

A   The meaning of Name and Value depend on Type.

B   The meaning of Value and Type depend on Name.

C   If Type=A, then Name is a domain and Value is the IP address for the hostname.

D   If Type=MX, then Name is domain and Value is the IP address for the hostname.

61. In the following four options about DNS messages, which one is not correct?

A   There are only two kinds of DNS message.

B   Both query and reply message have the same format.

C   The header section in DNS message has 12 bytes.

D   The authority section contains the resource records for the same that was originally queried.

62. In DNS message,_____ contains information about the query that is being made.

A   authority section   B   question section   C   answer section   D   additional section

63. There are three techniques are employed in most any P2P file-sharing systems, which one is not include?

A   Request queuing   B   incentive priorities   C   parallel downloading   D   Response queuing

64. In the following four options about P2P file-sharing, which one is not correct?

A   P2P file-sharing is highly scalable.

B   P2P file-sharing relies on P2P architecture.

C   The means for locating content in different P2P file-sharing are different.

D   P2P file-sharing systems not only share MP3s,but also videos, software, documents and images.

65. In MIME header lines, _____ specifies the name of the SMTP server that sent the message (from), the name of the SMTP server that received the message (by), and the time an which the receiving server received the message.

A   Received   B   From   C   To   D   MIME-Version

66. If the header line Connection is close, it means that the client wants _____ .

A   persistent connection with pipelining

B   persistent connection without pipelining

C   nonpersistent connection

D   not connection

67. In HTTP request message, the entity body is empty with the _____ method, but is used with the _____ method.

A   GET, POST   B   POST,GET   C   GET, HEAD   D   POST, HEAD

68. In HTTP response message, if the Date: header ;one indicates the time Fri. 08 Aug. 2008 12:00:00 GMT, the Last-Modified: header line can not be_____ .

A   Fri. 08 Aug. 2008 11:00:00 GMT   B   Fri. 08 Aug. 2008 11:30:00 GMT

C   Fri. 08 Aug. 2008 12:00:00 GMT   D   Fri. 08 Aug. 2008 12:30:00 GMT

69. In the following four options, which one is not the part of cookie technology?

    A   Cookie header lines in the HTTP response message and request message.

    B   One cookie header file kept on the user's end system and managed by the user's browser.

    C   A network entity that satisfies HTTP requests on the behalf of an origin Web server.

    D   A back-end database at the Web site

70. On-top of stateless HTTP, _____ can be used to create a user session layer.

    A   proxy server   B   Web cache   C   cookie   D   socket

71. Processes communicate with each other by reading from and writing to _____ .

    A   programs   B   threads   C   sockets   D   channels

72. In the following four options about network architecture, which one is not correct?

    A   The network architecture is fixed.

    B   The network architecture provides a specific set of services to application.

    C   The network architecture is designed by application developer.

    D   The network architecture dictates how the application is organized over special server.

73. In Client-Server architecture, the clients visit the server's through _____ .

    A   client's socket   B   client's IP address

    C   server's socket   D   server's IP address

74. _____ can be thought of as a program that is running within end system.

    A   process   B   thread   C   socket   D   context

75. API means_____ .

    A   Application Program Interface   B   Application Process Interface

    C   Appellation Program Interface   D   Appellation Process Interface

76. One host can be running many network applications, so the system assigns them different _ to distinguish each other.

    A   IP address   B   port number   C   hostname   D   section

77. In the following four applications, which one is both bandwith-sensitive and require tight timing constraints?

    A   real-time audio   B   file transfer   C   E-mail   D   Web documents

78. The port number of the Web server is _____ .

    A   25   B   20   C   80   D   8080

79. The port number of the mail server is _____ .

    A   25   B   20   C   80   D   8080

80. Look the URL http://www.djtu.edu.cn/rjxy/index.html, the object's path name is_____ .

    A   www.djtu.edu.cn   B   www.djtu.edu.cn/rjxy

    C   /rjxy/index.html   D   index.html

81. Each URL has components, they are _____ .

    A   transport protocol and object's path name

    B   host name and object's path name

    C   transport protocol and host name

    D   client name and server name

82. Consider an HTTP client will request a WEB page from a WEB server. Suppose the URL of the page is www.stdjtu.edu.cn/somedepartment /somedir/exp.html. The client does not want to use persistent connections and want to receive French version of the object. The user agent is Windows NT 5.1. Give the request message according to the given format.

Request line: _____

Header lines: _____

_____

83. Telnet into a Web server and send a multiline request message. Include in the request message the If-modified-since: header line to force a response message with the 304 Not Modified status code.
Solution:
Request line: _____
Header lines: _____

84. Consider accessing your e-mail with POP3.
a. Suppose you have configured your POP mail client to operate in the download-and delete mode. Complete the following transaction:
C: list
S: 1 498
C: 2 912
S: .
C: retr 1
S: blah blah ······
S: ······blah
S: .
C: _____
C: _____
S: _____
S: _____
S: _____
C; _____
C: _____
b. Suppose you have configured your POP mail client to operate in the download-and-keep mode. Complete the following transaction:
C: list
S: 1 498
C: 2 912
S: .
C: retr 1
S: blah blah ······
S: ······blah
S: .
C: _____
S: _____
S _____
S: _____
C: _____

85. Suppose within you Web browser you click on a link to obtain a Web page. The IP address for the associated URL is not cached in your local host, so a DNS look-up is necessary to obtain the IP address. Suppose that n DNS servers are visited before your host receives the IP address from DNS; the successive visits incur an RTT of RTT1,···，RTTn. Further suppose that the Web page associated with the link contains exactly one object, consisting of a small HTML text. Let RTT0 denote the RTT between the local host and the server containing the object. Assuming zero transmission time of the object, how much time elapses from when the client clicks on the link until the client receives the object?

86. Suppose that you send an e-mail message whose only data is a microsoft excell attachment. What might the header lines (including MIME lines) look like?

Chapter 3

1. A transport-layer protocol provides for logical communication between _____.

   A   Application processes   B   Hosts   C   Routers   D   End systems

2. Transport-layer protocols run in _____.

   A   Servers   B   Clients   C   Routers   D   End systems

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

   A   Frames   B   Segments   C   Data-grams   D   bit streams

4. Services provided by transport layer include _____.

   A   HTTP and FTP   B   TCP and IP   C   TCP and UDP   D   SMTP

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

   A   Delay guarantees and bandwidth guarantees

   B   Reliable data transfers and flow controls

   C   Congestion controls

   D   In-order data transfers

6. These two minimal transport-layer services----_____ 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

7. Port number's scope is _____ to _____.

   A   0, 1023   B   0, 65535   C   0, 127   D   0,255

8. The port numbers ranging from _____to _____ are called well-known port number and are restricted.

   A   0, 1023   B   0, 65535   C   0, 127   D   0,255

9. UDP socket identified by two components, they are _____.

   A   source IP addresses and source port numbers

   B   source IP addresses and destination IP addresses

   C   destination IP address and destination port numbers

   D   destination port numbers and source port numbers

10. TCP socket identified by a (an) _____.

   A   1-tuple   B   2-tuple   C   3-tuple   D   4-tuple

11. Which of the following applications normally uses UDP services?

   A   SMTP   B   Streaming multimedia   C   FTP   D   HTTP

12. Reliable data transfer protocol over a perfectly reliable channel is_____.

  A rdt1.0 B rdt2.0 C rdt3.0 D rdt2.1

13. Reliable data transfer protocol over a channel with bit errors and packet losses is _____.

  A rdt1.0 B rdt2.0 C rdt3.0 D rdt2.1

14. Which of the following about reliable data transfer over a channel with bit errors is not correct?

  A RDT2.0: assuming ACK and NAK will not be corrupted

  B RDT2.1: assuming ACK and NAK can be corrupted

  C RDT2.2: only use ACK-s

  D RDT2.2: use both ACK-s and NAK-s

15. Which of the following protocols is not pipelining protocols?

  A TCP B rdt3.0 C GO-BACK-N D selective repeat

16. Which of the following is not correct about GBN protocol?

  A Only using ACK-s   B Using cumulative ACK-s

  C Receiver discards all out-of-order packets

  D It is not pipelined protocol

17. Which of the following is not correct about SR protocol?

  A receiver individually acknowledges all correctly received packets

  B sender only resends packets for which ACK not received

  C It limits sequence number of sent but un-ACK-ed packets

  D It is not a pipelined protocol

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

  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

19. The SYN segment is used for_____.

  A TCP connection setup   B TCP flow control

  C TCP congestion control   D Closing a TCP connection

20. The FIN segment is used for_____.

  A TCP connection setup   B TCP flow control

  C TCP congestion control   D Closing a TCP connection

21. How does TCP sender perceive congestion?

  A Through a timeout event   B Through a receiving duplicate ACK-s event

  C Both A and B   D Either A or B

22. Extending host-to-host delivery to process-to-process delivery is called transport-layer _____ and _____.

  A multiplexing and de-multiplexing B storing and forwarding

  C forwarding and filtering   D switching and routing

23. UDP is a _____ service while TCP is a connection-oriented service.

  A Connectionless B Reliable C Connection-oriented D In-order

24. The UDP header has only four fields, they are_____.

  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

25. There are two 16-bit integers: 1110 0110 0110 0110, 1101 0101 0101 0101. Their checksum is_____.

  A 0100010001000011 B 1011101110111100

  C 1111111111111111 D 1000000000000000

26. The maximum amount of data that can be grabbed and placed in a segment is limited by the_____.

  A Maximum segment size (MSS) B MTU

C   Checksum   D   Sequence number

27. The MSS is typically set by first determining the length of the largest link-layer frame that can be sent by the local sending host----the so-called____.

A   Maximum transmission unit (MTU)   B   MSS

C   Checksum   D   Sequence number

28. A File size of 500,000bytes, MSS equals 1000bytes. When we want to transmit this file with TCP, the sequence number of the first segment is 0, and the sequence number of the second segment is ____.

A   1000   B   999   C   1001   D   500000

29. Because TCP only acknowledges bytes up to the first missing byte in the stream, TCP is said to provide____.

A   Cumulative acknowledgements   B   Selective acknowledgements

C   3 duplicate ACKs   D   positive ACKs

30. Provided α=0.125, current value of Estimated-RTT is 0.4s, Sample-RTT is 0.8s, then the new value of Estimated-RTT is ____s.

A   0.45   B   0.6   C   0.7   D   0.8

31. Provided RcvBuffer=20,LastByteRcvd=20,LastByteRead=15, then RcvWindow=____.

A   14   B   15   C   16   D   10

32. TCP service does not provide____.

A   Reliable data transfer   B   Flow control   C   Delay guarantee   D   Congestion control

33. There are two states in TCP congestion control, which are ____.

A   slow start and congestion avoidance   B   safe start and congestion avoidance

C   slow start and congestion abandon   D   safe start and congestion abandon

34. The transport-layer protocol provides logical communication between ____, and the network-layer protocol provides logical communication ____.

A   hosts, processes   B   processes, hosts   C   threads, processes   D   processes, threads

35. To implement the multicast services the Internet employs the ____ protocol.

A   FTP   B   TCP   C   IGMP   D   UDP

36. If an application developer chooses ____ protocol, then the application process is almost directly talking with IP.

A   HTTP   B   RIP   C   CSMA/CD   D   UDP

37. ____ maintains connection-state in the end systems. This connection state includes receive and send buffers, congestion-control parameters, and sequence and acknowledgment number parameters.

A   UDP   B   TCP   C   DNS   D   HTTP

38. The host that initiates the session in the Internet is labeled as ____.

A   server   B   user agent   C   client   D   router

39. With TCP there is no ____ between sending and receiving transport-layer entities.

A   flow control   B   handshaking   C. congestion control   D   VC setup

40. The Internet's ____ service helps prevent the Internet from entering a state of gridlock.

A   datagram   B   congestion control   C   sliding window   D   timeout event

41. Connection setup at the transport layer involves ____.

A   server   B   only the two end systems   C   client   D   router

42. A ____layer protocol provides for logical communication between applications.

A   transport   B   application   C   networking   D   MAC

43. In static congestion window, if it satisfies W*S/R > RTT + S/R, the Latency is ____.

A   W*S/R – (RTT+ S/R)   B   2RTT + O/R   C   2RTT + O/R + (k-1)[W* S/R- (RTT + S/R)]   D   2RTT + S/R

44. The receive side of transport layer reassembles segments into messages, passes to ____layer.

A   Application   B   Networking   C   Physical   D   MAC

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

    A   The variations in the SampleRTT are smoothed out in the computation of the EstimatedRTT

    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 $\geq$1 sec

    D   Suppose that the last SampleRTT in a TCP connection is equal to 1 sec. Then the current value of TimeoutInterval will necessarily be $\leq$1 sec

46. The port number used by HTTP is _____.

    A 80   B 25   C 110   D 53

47. The port number used by SMTP is _____.

    A 80   B 25   C 110   D 53

48. The port number used by pop3 is _____.

    A 80   B 25   C 110   D 53

49. The port number used by DNS is _____.

    A 80   B 25   C 110   D 53

50. The port number used by FTP is _____.

    A 20 and 21   B 20   C 21   D 53

51. A UDP socket identified by a _____ tuple(s).

    A 2   B 4   C 1   D 3

52. A TCP socket identified by a _____ tuple(s).

    A 2   B 4   C 1   D 3

53. A TCP socket does not include_____.

    A Source MAC address   B Source port number   C Destination IP address   D Destination port number

54. Which of following about UDP is not correct.

    A It is a reliable data transfer protocol   B It is connectionless

    C no handshaking between UDP sender, receiver   D it is a best effort service protocol

55. DNS uses _____ service.

    A TCP   B UDP C Both TCP and UDP   D None of above

56. Which of following about UDP is correct?

    A Finer application-level control over what data is sent, and when

    B No connection establishment (which can add delay), so no delay for establish a connection

    C No connection state (so, UDP can typically support many active clients)

    D Large packet header overhead (16-B)

57. Streaming media uses a _____ service normally.

    A TCP   B UDP   C Both TCP and UDP   D None of above

58. The UDP header has only _____ fields.

    A 2   B 4   C 1   D 3

59. Which of the following does not included in UDP header.

    A Source port number   B Destination port number   C Checksum   D Sequence number

60. Which of the following is not a pipelining protocol.

    A Rdt1.0   B Go-Back-N C Selective repeat   D TCP

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

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

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

    C The MSS is typically set by MTU

    D The MTU means the largest link-layer frame

62. 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   multiplexing   B   de-multiplexing   C   forwarding   D   routing

63. In the following four descriptions about the relationship between the transport layer and the network layer, which one is not correct?

    A   The transport-layer protocol provides logical communication between hosts

    B   The transport-layer protocol provides logical communication between processes

    C   The services that a transport-layer protocol can provide are often constrained by the service model of the network-layer protocol

    D   A computer network may make available multiple transport protocols

64. Suppose the following three 8-bit bytes: 01010101, 01110000, 01001100. What's the 1s complement of the sum of these 8-bit bytes?

    A   00010001   B   11101101   C   00010010   D   10001000

65. The following four descriptions about multiplexing and de-multiplexing, which one is correct?

    A   A UDP socket is identified by a two-tuples consisting of a source port number and a destination port number.

    B   If two UDP segment have different source port number, they may be directed to the same destination process.

    C   If two TCP segments with different source port number, they may be directed to the same destination process.

    D   If two TCP segments with same destination IP address and destination port number, they must be the same TCP connection.

66. UDP and TCP both have the fields except ____.

    A   source port number   B   destination port number

    C   checksum   D   receive window

67. 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   can be sent immediately   B   have already been transmitted and acknowledged

    C   cannot be used   D   have been sent but not yet acknowledged

68. Which of the following about TCP is not correct?

    A   It is a connectionless protocol   B   Point-to-point protocol

    C   Reliable, in-order byte steam protocol   D   Pipelined protocol

69. Which of the following about TCP is not correct?

    A   It is a connectionless protocol   B   full duplex data transfer protocol

    C   connection-oriented protocol   D   flow controlled protocol

70. The maximum amount of data that can be grabbed and placed in a segment is limited by the ____.

    A   Maximum segment size (MSS)   B   MTU

    C   Sequence number   D   Check sum

71. The MSS is typically set by first determining the length of the largest link-layer frame that can be sent by the local sending host (the so-called____), and then will fit into a single link-layer frame.

    A   Maximum segment size (MSS)   B   MTU

    C   Sequence number   D   Check sum

72. The MSS is the maximum amount of ____layer data in the segment, not the maximum size of the TCP segment including headers.

    A   Application   B   Transport   C   Networking   D   Link

73. Which of the following field is not used for connection setup and teardown?

    A   Sequence number   B   TST   C   SYN   D   FIN

74. ____ is the byte stream number of first byte in the segment.

    A   Sequence number   B   ACK number   C   Checksum   D   port number

75. ____ is the byte sequence numbers of next byte expected from other side.

　　A　Sequence number　　　B　ACK number　　　C　Checksum　　　D　port number

76. Because TCP only acknowledges bytes up to the first missing byte in the stream, TCP is said to provide ____ acknowledgements.

　　A　Cumulative　　　B　Selective　　　C　Single　　　D　Negative

77. Fast retransmit means in the case that ____ duplicate ACK-s are received, the TCP sender resend segment before timer expires.

　　A　3　　　B　4　　　C　5　　　D　6

78. TCP____ means sender won't overflow receiver's buffer by transmitting too much, too fast.

　　A　Flow control　　　B　Congestion control　　　C　Reliable data transfer　　　D　Connection-oriented service

79. TCP provides flow control by having the sender maintain a variable called the ____.

　　A　Receive window　　　B　Congestion window　　　C　Sliding window　　　D　buffer

80. How does TCP sender perceive congestion?

　　A　Timeout　　　B　3 duplicate ACK-s　　　C　Both A and B　　　D　None of above

81. Transport protocols run in ____.

　　A　Servers　　　　　B　Clients　　　　　C　Routers　　　　　D　End systems

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

　　A　Delay guarantees and bandwidth guarantees　　　B　Reliable data transfers and flow controls

　　C　Congestion controls　　　　　　　　　　　　　　D　In-order data transfers

83. Which service does UDP not provide?

　　A　multiplexing　　　　　B　de-multiplexing

　　C　error-detection　　　　B　error-correction

84. There are three major events related to data transmission and retransmission in the TCP sender, which one is not in it?

　　A　data received from application above　　　　B　de-multiplexing segment

　　C　timer timeout　　　　　　　　　　　　　　D　ACK receipt

85. Which of the following applications normally uses UDP services?

　　A　SMTP　　　B　Streaming multimedia　　　C　FTP　　　D　HTTP

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

　　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

87. The SYN segment is used for____.

　　A　TCP connection setup　　　B　TCP flow control

　　C　TCP congestion control　　　D　Closing a TCP connection

88. Which service helps prevent the internet from entering a state of gridlock?

　　A　reliable data transfer　　　　　　B　flow control

　　C　congestion control　　　　　　　D　handshaking procedure

89. The Internet's _____is responsible for moving packets from one host to another.

　　A　application layer　　　　B　transport layer　　　C　network layer　　　　　　　D　link layer

90. In the following applications, which one is a bandwidth-sensitive application?

　　A　E-mail　　　B　web application　　　C　real-time audio　　　D　file transfer

91. In the following applications, which one uses UDP?

　　A　E-mail　　　B　web application　　　C　file transfer　　　D　DNS

92. In the following four descriptions, which one is correct?

　　A　If one host's transport layer uses TCP, then its network layer must use virtual-circuit network.

　　B　Datagram network provides connection service

　　C　The transport-layer connection service is implemented in the router

    D   The network-layer connection service is implemented in the router as well as in the end system.

93. _____ 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

94. In the following four descriptions about Rcv-Window, which one is correct?

    A   The size of the TCP RcvWindow never changes throughout the duration of the connection

    B   The size of the TCP RcvWindow will change with the size of the TCP RcvBuffer

    C   The size of the TCP RcvWindow must be less than or equal to the size of the TCP RcvBuffer

    D   Suppose host A sends a file to host B over a TCP connection, the number of unacknowledged bytes that A sends cannot exceed the size of the size of the RcvWindow.

95. There are 6 flag fields. Which one is to indicate that the receiver should pass the data to the upper layer immediately?

    A   PSH   B   URG   C   ACK   D   RST

96. Suppose the TCP receiver receives the segment that partially or completely fills in gap in received data, it will _____.

    A   immediately send ACK   B   immediately send duplicate ACK

    C   wait some time for arrival of another in-order segment   D   send single cumulative

97. _____ imposes constrain on the rate at which a TCP sender can send traffic into the network.

    A   sliding window   B   congestion window   C   receive window   D   variable window

98. Flow control and congestion control are same at that they all limit the rate of the sender, but differ in that _____.

    A   flow control limits its rate by the size of RcvWindow, but congestion control by the traffic on the link

    B   congestion control limits its rate by the size of RcvWindow, but flow control by the traffic on the link

    C   flow control mainly is accomplished by the sender, but congestion control by the receiver.

    D   flow control mainly is accomplished by the receiver, but congestion control by the link.

99. This job of delivering the data in a transport-layer segment to the correct socket is called _____.

    A   multiplexing   B   de-multiplexing   C   forwarding   D   routing

100. 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 [base, nextseqnum-1] corresponds to packet that _____.

    A   can be sent immediately   B   have already been transmitted and acknowledged

    C   cannot be used   D   have been sent but not yet acknowledged

101. _____ are the two types of transport services that the Internet provides to the applications.

    A   TCP and UDP   B   connection-oriented and connectionless service

    C   TCP and IP   D   reliable data transfer and flow control

102. In the following descriptions about persistent connection, which one is not correct?

    A   The server leaves the TCP connection open after sending a response

    B   Each TCP connection is closed after the server sending one object

    C   There are two versions of persistent connection: without pipelining and with pipelining

    D   The default mode of HTTP uses persistent connection with pipelining

103. The field of Length in UDP segment specifies the length of _____.

    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

104. In TCP segment header, which field can implement the reliable data transfer?

    A   source port number and destination port number   B   sequence number and ACK number

    C   urgent data pointer   D   Receive window

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

    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

106. Suppose host A sends two TCP segments back to back to host B over a TCP connection. The first segment has sequence number 42, and the second has sequence number 110. If the 1st is lost and 2nd arrives at host B. What will be the acknowledgment number?

　　　A　43　　　　　　　　B　ACK42　　C　109　　　　　　　　　　　　D　ACK110

107.Consider sending an object of size O=500,000bytes from server to client. Let S=500 bytes and RTT=0.2s. Suppose the transport protocol uses static windows with window size 5. For a transmission rate of 100Kbps, determine the latency for sending the whole object. Recall the number of windows K=O/ WS), and there is K-1 stalled state (that is idle time gaps).

108.Consider the following plot of TCP congestion window size as a function of time.

Transmission round
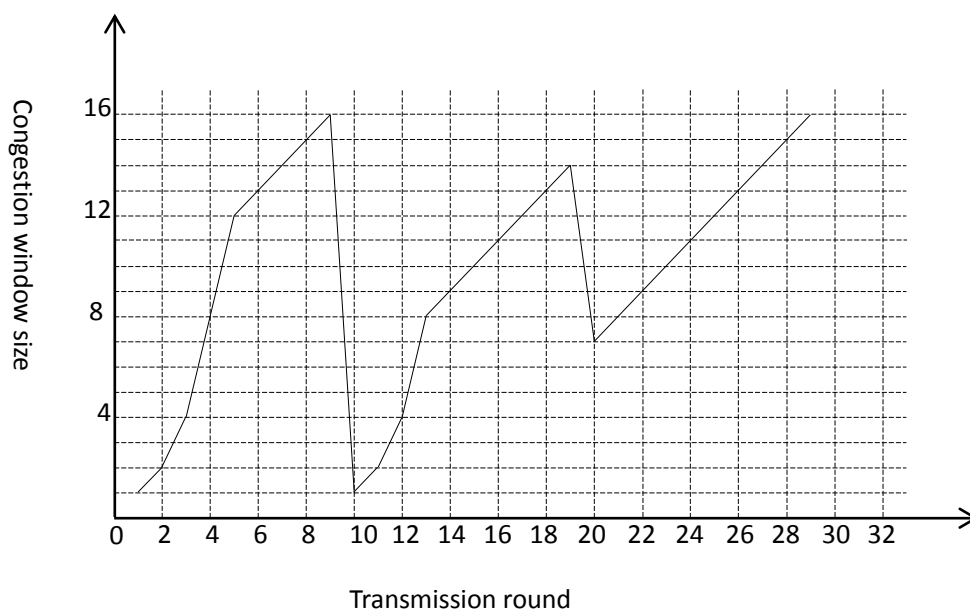
Fill in the blanks as follow:

a)　　The initial value of Threshold at the first transmission round is ____.

b)　　The value of Threshold at the 11st transmission round is ____.

c)　　The value of Threshold at the 21st transmission round is ____.

d)　　After the 9th transmission round, segment loss detected by ____.

　　　(A)　　Timeout　　(B)　Triple duplicate ACK

e)　　After the 19th transmission round, segment loss detected by ____.

　　　(A)　　Timeout　　　　(B)　　Triple duplicate ACK

f)　　During ____ transmission round, the 18th segment is sent.
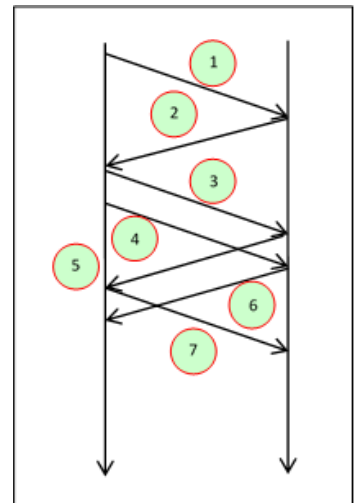
109.Consider the TCP reliable data transfer in the given graph. If in Segment 1's Sequence number =10,data="AC", please fill in the following blanks.

a)　　In Segment 2, ACK number=____;

b)　　In Segment 3, Sequence number =____; data="0123456789"

c)　　If there are some bits corrupted in segment 3 when it arrives Host B, then the ACK

　number in Segment 5 is ____; and the ACK number in Segment 6 is ____.

110. The client A wants to request a Web page from Server B. Suppose the URL of the page is 172.16.0.200/experiment, and also it wants to receive French version of object. The time-sequence diagram is shown below, please fill in the blanks.

Packet① to Packet③ are TCP connection's segment, then:

Packet ①: SYN flag bit= a

        ACK flag bit= b

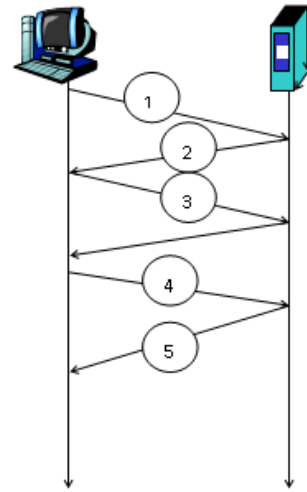   Sequence number= 92

Packet ②: SYN flag bit=1

        ACK flag bit= c

        Sequence number=100

Packet ③: SYN flag bit= d

        ACK flag bit=1

        Sequence number= e

111. Consider sending an object of size O=100 Kbytes from server to client. Let S=536 bytes and RTT=100msec. Suppose the transport protocol uses static windows with window size W.

(1) For a transmission rate of 25 kbps, determine the minimum possible latency. Determine the minimum window size that achieves this latency.

(2) Repeat (1) for 100 kbps.

112. Consider the following plot of TCP congestion window size as a function of time. Please fill in the blanks as below.
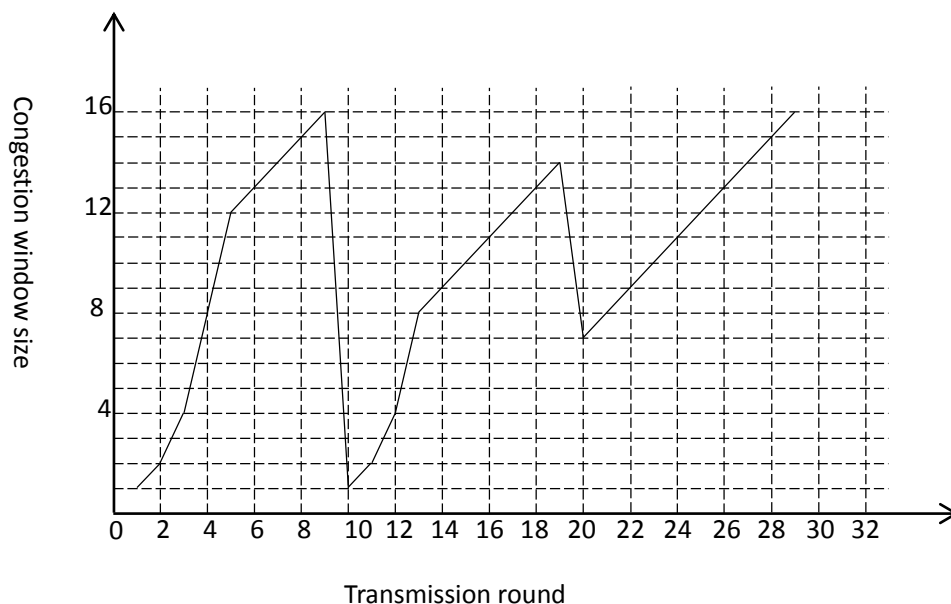
Transmission round

a) The initial value of Threshold at the first transmission round is____.

b) The value of Threshold at the 11th transmission round is_____.

c) The value of Threshold at the 21st transmission round is_____.

d) After the 9th transmission round, _____ occurs.

e) After the 19th transmission round, ____ are detected.