分组

1.

The stop-and-wait protocol is highly inefficient when there is a large distance between source and destination and the transmission rate is high.

(1.0分)

√ ◉ A.True
○ B.False

2. Suppose that host A wants to send data over TCP to host B, and host B wants to send data to host A over TCP. Two separate TCP connections - one for each direction - are needed.(1.0分)

○ A.True
√ ◉ B.False

3. Congestion control reduces the transmission rate at the sender when the receiver is overloaded(1.0分)

√ ◉ A.True
○ B.False

4. A source's retransmission timeout value is always set equal to the measured RTT.(1.0分)

○ A.True
√ ◉ B.False

5.

The Slow-Start algorithm increases a source's rate of transmission faster than "additive increase"

(1.0分)

√ ◉ A.True
○ B.False

6. Flow control and congestion control are same at that they all limit the rate of the sender, but differ in that ____.(1.0分)

√ ◉ 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.

7. 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 _____, respectively.(1.0分)

○ A.16, 8
○ B.24, 8
√ ◉ C.8, 1
○ D.16, 1

8. In TCP, the timeout interval is a function of:(1.0分)

√ ◉ A. estimated RTT at the sender
○ B.MSS and the overhead of a segment
○ C.the size of buffer at the receiver
○ D.the size of sending window

9. There are two states in TCP congestion control, which are ____.(1.0分)

√ ◉ A. slow start and congestion avoidance
○ B.safe start and congestion avoidance
○ C.slow start and congestion abandon
○ D. safe start and congestion abandon

10. How does TCP sender perceive congestion?(1.0分)

○ A.Through a timeout event
○ B.Through a receiving duplicate ACK-s event
○ C.Both A and B
√ ◉ D.Either A or B

11. In the following four descriptions about TCP connection management, which one is not correct?(1.0分)

○ 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

12. Provided RcvBuffer = 20, LastByteRcvd = 20, LastByteRead = 15, then RcvWindow=____.(1.0分)

○ A.14
√ ◉ B.15
○ C.16
○ D.10

13. In the following four descriptions about Rcv-Window, which one is correct? (1.0分)

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.

14. TCP provides flow control by having the sender maintain a variable called the ____. (1.0分)

√ A.Receive window

B.Congestion window

C.Sliding window

D.buffer

15. ____ is a speeding-matching service---matching the rate which the sender is sending against the rate at which the receiving application is reading.(1.0分)

A.congestion control

√ B.flow control

C.sliding-window control

D.variable control

16. Fast retransmit means in the case that ____ duplicate ACK-s are received, the TCP sender resend segment before timer expires.(1.0分)

√ A.3

B.4

C. 5

D.6

17. What is the main difference between stop-and-wait and pipelined reliable data transfer protocol?(1.0分)

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.

18. Which of the following is not a pipelining protocol.(1.0分)

√ A.Rdt1.0

B.Go-Back-N

C.Selective repeat

D.TCP

19. 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 ____.(1.0分)

√ A. can be sent immediately

B.have already been transmitted and acknowledged

C.cannot be used

D.have been sent but not yet acknowledged

20. Because TCP only acknowledges bytes up to the first missing byte in the stream, TCP is said to provide____.(1.0分)

√ A.Cumulative acknowledgements

B.Selective acknowledgements

C.3 duplicate ACKs

D.positive ACKs

21. 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 _____(1.0分)

A.422

B.418

√ C.571

D.575

22. There are two 16-bit integers: 1110 0110 0110 0110, 1101 0101 0101 0101. Their checksum is____.(1.0分)

√ A.0100010001000011

B.1011101110111100

C.1111111111111111

D.1000000000000000

23. 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.(1.0分)

√ A.0.45

B.0.6

C.0.7

D.0.8

24. In the following four options, which one is correct?(1.0分)

√ ◉ 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≥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≤1 sec

25. ____ is the byte sequence numbers of next byte expected from other side. (1.0分)

○ A.Sequence number
√ ◉ B.ACK number
○ C.Checksum
○ D.port number

26. ____ is the byte stream number of first byte in the segment.(1.0分)

√ ◉ A.Sequence number
○ B.ACK number
○ C.Checksum
○ D.port number

27.

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

(1.0分)

○ A.Sequence number
√ ◉ B.TST
○ C.SYN
○ D.FIN

28. In the following four descriptions about MSS and MTU, which one is not correct?(1.0分)

◉ 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

29. Which of the following about TCP connection is not correct?(1.0分)

√ ◉ 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

30. The field of Length in UDP segment specifies the length of ____. (1.0分)

○ 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

31. The UDP header has only four fields, they are____.(1.0分)

√ ◉ 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

32.

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

(1.0分)

√ ◉ A.0, 1023
○ B.0, 65535
○ C.0, 127
○ D.0,255

33. Port number's scope is ____ to ____. (1.0分)

○ A.0, 1023
√ ◉ B.0, 65535
○ C.0, 127
○ D. 0,255

34. The following four descriptions about multiplexing and de-multiplexing, which one is correct?(1.0分)

◉ 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.

35. This job of delivering the data in a transport-layer segment to the correct socket is called ____.(1.0分)

A.multiplexing
√ B.de-multiplexing
C.forwarding
D.routing

36. 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 ____.(1.0分)

√ A. multiplexing
B.de-multiplexing
C.forwarding
D.routing

37. Which of the following applications normally uses UDP services?(1.0分)

A.SMTP
√ B.Streaming multimedia
C.FTP
D.HTTP

38. UDP offers which of the following benefits relative to TCP? (1.0分)

√ A.UDP consumes fewer computer resources by not maintaining connection state
B.UDP supports a self-regulating “throttle” feature that prevents network saturation
C.UDP guarantees that Individual packets of a transmission will arrive “in order”
D.None of the above

39. These two minimal transport-layer services----____ and ____----are the only two services that UDP provides(1.0分)

√ 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

40. Which of the following services is not provided by TCP?(1.0分)

√ A.Delay guarantees and bandwidth guarantees
B.Reliable data transfers and flow controls
C. Congestion controls
D.In-order data transfers

41. Services provided by transport layer include ____.(1.0分)

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

42. The receive side of transport layer reassembles segments into messages, passes to ____layer.(1.0分)

√ A.Application
B.Networking
C.Physical
D.MAC

43. In transport layer, the send side breaks application messages into ____, passes to network layer.(1.0分)

A.Frames
√ B. Segments
C.Data-grams
D. bit streams

44.

Transport-layer protocols run in _____.

(1.0分)

A.Servers
B.Clients
C.Routers
√ D.End systems

45.

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

(1.0分)

√ A.Application processes
B.Hosts
C. Routers
D.End systems

46. Why does UDP exist? Would it not have been enough to just let user processes send raw IP packets?(4.0分)

udp的存在使得包数据能够被正确的主机接收程序使用。

不能，ip包只有ip目的机地址，这也就意味着这个数据只能到达该计算机，而不能被正确的进程使用，而udp则包含了目标主机的ip信息和端口信息，使得目标主机正确接收数据。

得分:4.0
查看评语
参考答案

收起

47. Both UDP and TCP use port numbers to identify the destination entity when delivering a message. Give two reasons for why these protocols invented a new abstract ID (port numbers), instead of using process IDs, which already existed when these protocols were designed.(4.0分)

（1）进程id由操作系统指定，不同操作系统有不同的id，甚至同一机器的同一进程不同时刻运行的id也会不同

（2）一个客户端进程可能与服务器端建立多个信道，唯一的进程id将无法应对这种情况

得分:4.0
查看评语
参考答案

收起

48. Two networks each provide reliable connection-oriented service. One of them offers a reliable byte stream and the other offers a reliable message stream. Are these identical? If so, why is the distinction made? If not, give an example of how they differ(4.0分)

不一样。报文流将报文作为一个整体，字节流把所有字节作为一个整体，无法分清楚所发送的字节属于哪个报文，即报文边界不可识别。举个例子一个进程发送1024字节的数据，之后又发送了一样大小的数据，对于数据流则是发送了2048个字节，而对于报文流则是发送了2个报文。

得分:4.0
查看评语
参考答案

收起

49.

When a file is transferred between two computers, two acknowledgement strategies are possible. In the first one, the file is chopped up into packets, which are individually acknowledged by the receiver, but the file transfer as a whole is not acknowledged. In the second one, the packets are not acknowledged individually, but the entire file is acknowledged when it arrives. Discuss these two approaches

(4.0分)

第一种策略是每发送一个包就确认一次，第二种策略是整个文件发送一次就确认，即过程中只确认一次。现做如下论述：

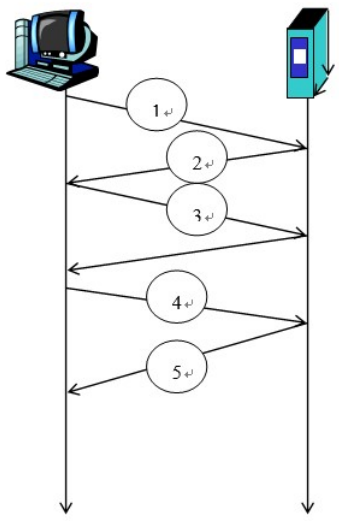
如若不发生丢包，那么第二种策略只需要确认一次，效率高；

如若发生丢包，第一种策略只需要重传丢包的分组，而第二种策略需要重传整个文件，效率低。

得分:4.0
查看评语
参考答案

收起

50. 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.



Packet 1 to Packet 3 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)

(4.0分)

1 0 1 0 1 93

得分:4.0

查看评语

参考答案

收起

51.

Host A wants to send a 12KB file F over a TCP connection. Several assumptions:

- This TCP connection uses the slow-start congestion control scheme with an initial THRESHOLD value of 4 KB
- The MSS is 1KB.
- The receiver's advertised window is initially 4 KB.
- Unless indicated otherwise, all segments were received properly and received in the same order as they were sent
- The receiver will send ACK immediately, once receiving one data segment.
- The receiver will buffer all the out-of-ordered segments.
- It takes the sender 10 ms to "push" the segment onto the network. This means that if the first data segment is pushed onto the network starting at time 0, then the second segment can started to be pushed onto the network at 10 ms.
- Unless indicated otherwise, each successfully transmitted segment has a round trip time of exactly 60ms (30 ms each way). This time includes transmission time.
- The timer on host A of this TCP connection is always set as 100 ms.
- The seq number and ack number of the first data segment are 0 and 100, respectively.
- Under the set of assumptions above, Find the seq number, ack number and the time to send of each data segments if:
- The ACK of the second data segment is slow, taking 50 ms(instead of 30ms as mentioned above).
- The first transmission of the 4th data segment is not received by the receiver.
- In the ACKs for the 8th data segment and subsequently, the receiver's advertised window is reset to 2 KB

Please fill in the value of time, seq number, and ack number for each segments A will send.

Sending time	seq	ack
0	0	100

(5.0分)

得分:4.0

查看评语

参考答案

10 1k 100

20 2k 100

30 3k 100

40 4k 100

140 4k 100

200 5k 100

210 6k 100

270 7k 100

280 8k 100

290 9k 100

300 10k 100

360 11k 100

370 12k 100

收起

52.

<!--[if !supportLists]-->3.1 <!--[endif]-->Fill in the value of the congestion window size (number of segments) for each transmission round. Assume the threshold starts at 30 segments and the following events occur:

<!--[if !supportLists]--><!--[endif]-->triple duplicate ACK during round 10

<!--[if !supportLists]--><!--[endif]-->timeout during round 12

<!--[if !supportLists]--><!--[endif]-->triple duplicate ACK during round 14

<!--[if !supportLists]--><!--[endif]-->timeout during round 22

● timeout during round 25

Round	Congestion Window Size	Round	Congestion Window Size
1	1	14	
2		15	
3		16	
4		17	
5		18	
6		19	
7		20	
8		21	
9		22	

10		23	
11		24	
12		25	
13		26	

(5.0分)

得分:4.0

查看评语

参考答案

2: 2 30慢启动

3: 4

4: 8

5: 16

6: 32

7: 33

8: 34

9: 35

10: 36

11: 21 18快速恢复

12: 22

13: 1 11慢启动

14: 2

15: 4 1快速恢复

16: 5

17: 6

18: 7

19: 8

20: 9

21: 10

22: 11

23: 1 5慢启动

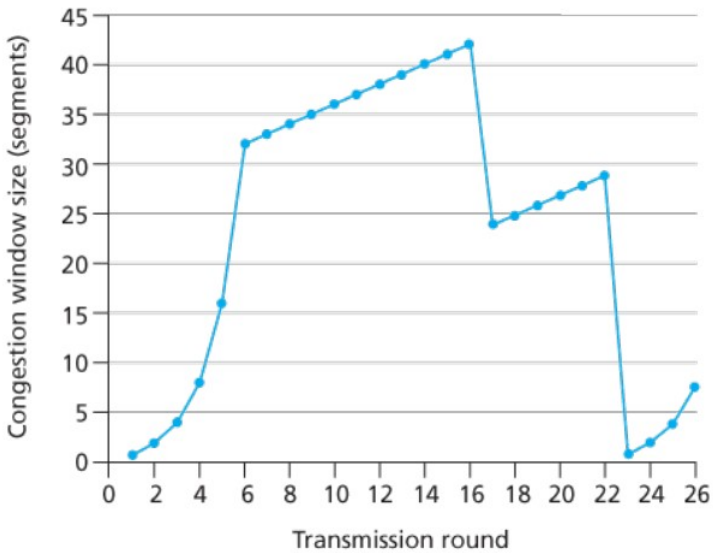
24: 2

25: 4

26: 2 2快速恢复

收起

53.



Assuming TCP Reno is the protocol experiencing the behavior shown below. Answers the following questions.

<!--[if !supportLists]-->a) <!--[endif]-->Identify the intervals of time when TCP slow start is operating.

<!--[if !supportLists]-->b) <!--[endif]-->Identify the intervals of time when TCP congestion avoidance is operating.

<!--[if !supportLists]-->c) <!--[endif]-->After the 16th transmission round, is segment loss detected by a triple duplicate ACK or by a timeout

<!--[if !supportLists]-->d) <!--[endif]-->After the 22th transmission round, is segment loss detected by a triple duplicate ACK or by a timeout

<!--[if !supportLists]-->e) <!--[endif]-->What is the initial value of ssthreshat the first transmission round?

<!--[if !supportLists]-->f) <!--[endif]-->What is the value of ssthreshat the 18th transmission round?

<!--[if !supportLists]-->g) <!--[endif]-->What is the value of ssthreshat the 24th transmission round?

<!--[if !supportLists]-->h) <!--[endif]-->During what transmission round is the 70th segment sent?

i) <!--[endif]-->Assuming a packet loss is detected after the 26th round by the receipt of a triple duplicate ACK, what will be the values of the congestion window size and of ssthresh?

(5.0分)

6：3

得分:0.0

查看评语

参考答案

收起

54.

<!--[if !supportLists]-->3.54 <!--[endif]-->You are sending a message with 10 segments, each having a sequence number from 1 to 10. The flow control algorithm used between the sender and receiver is Go-Back-N using cumulative ACKs where the sender window size is 3. Under the set of assumptions below, how long does it take before the sender deems the transmission complete if:

<!--[if !supportLists]-->● <!--[endif]-->The first transmission of segment 5 is not received by the receiver.

<!--[if !supportLists]-->● <!--[endif]-->The second transmission of segment 5 is received by the receiver but the ACK is slow, taking 60 ms (instead of 20ms as mentioned below). It still takes 20 ms for the segment to be sent from the sender to the receiver.

<!--[if !supportLists]-->● <!--[endif]-->The first ACK sent by the receiver after receiving segment 8 is not received.

Several assumptions:

Sequence numbers are assigned to segments rather than bytes. Unless indicated otherwise, all segments were receiv

Show your work by filling in the table on the following page. For each time interval, write the sequence number of any segment that is sent (i.e., starting to be pushed onto the network) in the SEND column. Similarly, write the sequence number included in any ACK received in the RECV column. To help you get started, segments 1 is done for you. Not all of the rows will be necessary.（10 points）

Time	*SEND*	*RECV*	*Time*	*SEND*	*RECV*
0	*1*		*220*		
10			*230*		
20			*240*		
30			*250*		
40		*1*	*260*		
50			*270*		
60			*280*		
70			*290*		
80			*300*		
90			*310*		

100			320		
110			330		
120			340		
130			350		
140			360		
150			370		
160			380		
170			390		
180			400		
190			410		
200			420		
210			430		

(10.0分)

得分:5.0

查看评语

参考答案

0 1 null

10 2 null

20 3 null

30 null null

40 4 1

50 5 2

60 6 3

70 null null

80 7 4

90 null null

100 null null

110 null null

120 null null

130 null null

140 5 null

150 6 null

160 7 null

170 null null

180 null null

190 8 6

200 9 5,7

210 10 null

220 null null

230 null null

240 null 9

250 null 10

第三次作业（周三班） (总分: 100)

收起

55. Refering to problem 3.54, assuming Selective Repeated is used instead of GBN, please fill the table (10 points)

Time	SEND	RECV	Time	SEND	RECV
0	1		220		
10			230		
20			240		
30			250		
40		1	260		
50			270		
60			280		
70			290		
80			300		

90			310		
100			320		
110			330		
120			340		
130			350		
140			360		
150			370		
160			380		
170			390		
180			400		
190			410		
200			420		
210			430		

(10.0分)

0 1 null

10 2 null

20 3 null

30 null null

40 4 1

50 5 2

60 6 3

70 null null

80 7 4

90 null null

100 null 6

110 null null

120 null 7

130 null null

140 5 null

150 null null

160 null null

170 null null

180 null null

190 null null

200 8 5

210 9 null

220 10 null

230 null null

240 null null

250 null 9

260 null 10

270 null null

280 null null

290 null null

300 8 null

310 null null

320 null null

330 null null

340 null 8

得分:5.0

查看评语

参考答案

收起

关闭