CNS-IAT-2-2020

Total points 49/50

Max Marks: 50 Time: 12pm to 1pm Date: 29/10/2020

Note: Answer all the questions (Marks for the questions vary based on the complexity of the question.)

The respondent's email address (**cvas18cs@cmrit.ac.in**) was recorded on submission of this form.

Enter your USN: *

1CR18CS046

✓ Consider an instance of TCP's Additive Increase Multiplicative Decrease(AIMD) algorithm where the window size at the start of the slow start phase is 2 MSS and the threshold at the start of the first transmission is 8 MSS. Assume that a time out occurs during the fifth transmission. Find the congestion window size at the end of the tenth transmission. * 3/3

- (●) 7 MSS ✓
- ( ) 14 MSS
- ( ) 8 MSS
- ( ) 12 MSS

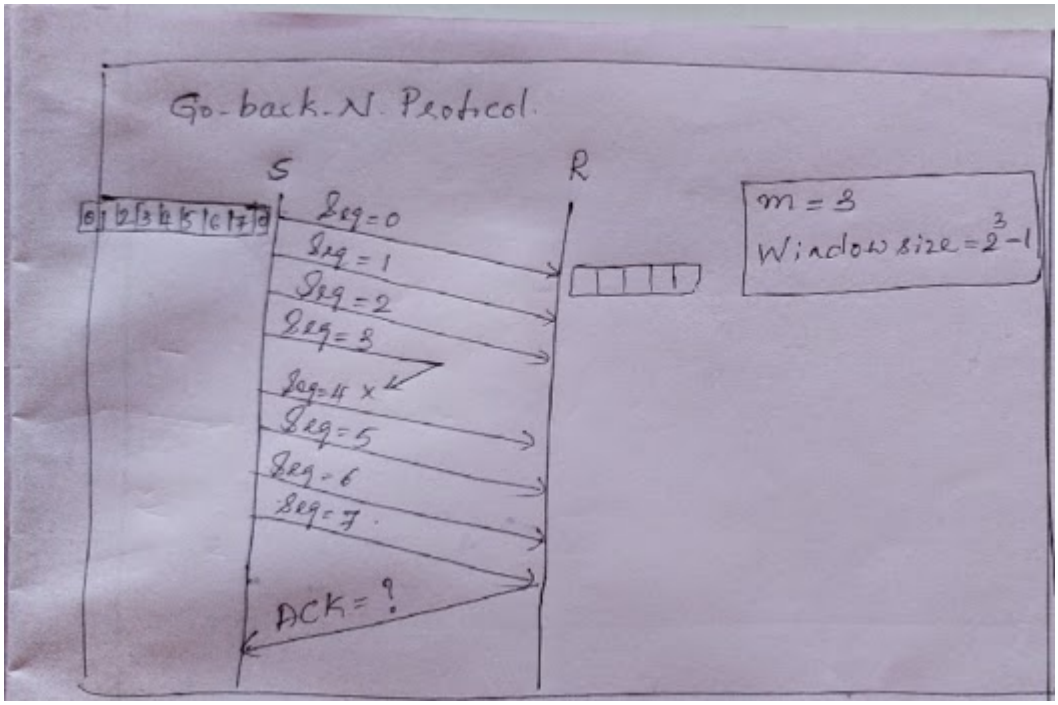
✓ Which of the following system calls results in the sending of SYN packets? * 2/2

- ○ bind
- ○ socket
- ○ listen
- ◉ connect ✓

✓ Let the size of the congestion window of a TCP connection be 32 KB when a timeout occurs. The round trip time of the connection is 100 msec and the maximum segment size used is 2 KB. The time taken (in msec) by the TCP connection to get back to 32 KB congestion window is _____. * 3/3

- ◉ 1100 to 1300 ✓
- ○ 800 to 1000
- ○ 1400 to 1600
- ○ 1500 to 1700

✓ In Go-Back-N protocol, if the number of bits in sequence number field m=3 then, with reference to following state sequence diagram, answer the following. i. What is the window size at the receiver? ii. What is the window size at sender's side? iii. what is the acknowledgement number given by the receiver? * 3/3



- (●) i. 1 ii. 7 iii. 3 ✓
- ( ) i. 7 ii. 1 iii. 0
- ( ) i. 7 ii.7 iii.3
- ( ) i. 1 ii. 7 iii. 7

✓ In the slow start phase of the TCP congestion control algorithm, the size of the congestion window * 1/1

- ○ increases quadratically
- ◉ increases exponentially ✓
- ○ increases linearly
- ○ does not increase

✓ What is the maximum size of data that the application layer can pass on to the TCP layer below? * 2/2

- ○ 2^16 bytes-size of TCP header
- ○ 2^16 bytes
- ◉ Any size ✓
- ○ 1500 bytes

✓ Station A uses 32 byte packets to transmit messages to Station B using a sliding window protocol. The round trip delay between A and B is 80 milliseconds and the bottleneck bandwidth on the path between A and B is 128 kbps. What is the transmission time of the packet? * 3/3

- ○ 4ms
- ○ 3ms
- ◉ 2ms ✓
- ○ 10ms

✓ Station A needs to send a message consisting of 9 packets to Station B using a sliding window (window size 3) and go-back-n error control strategy. All packets are ready and immediately available for transmission. If every 5th packet that A transmits gets lost (but no acks from B ever get lost), then what is the number of packets that A will transmit for sending the message to B? * 4/4

- ○ 14
- ◉ 16 ✓
- ○ 18
- ○ 12

✓ Transport layer receives data in the form of _____ * 2/2

- ○ Packets
- ○ Both packets and Byte stream
- ◉ Byte streams ✓
- ○ Bits stream

✓ Transport layer enables * 1/1

- ◉ Different applications to use different communication (reliable/unreliable) ✓
- ○ Different applications to use different IP address
- ○ One application to use different physical media
- ○ Different applications to use different physical media

✓ User datagram protocol is called connectionless because * 2/2

- ○ None of the mentioned
- ○ It sends data as a stream of related packets
- ◉ All UDP packets are treated independently by transport layer ✓
- ○ Both of the above

✓ What is the purpose of the PSH flag in the TCP header? * 1/1

- ○ Typically used to indicate end of message
- ◉ Typically used to send the message immediately ✓
- ○ Typically used to indicate beginning of message
- ○ Typically used to indicate stop the message

✓ The bytes of data being transferred in each connection are numbered by TCP. The numbering starts with a _____. 2/2

- ○ 1
- ○ None of the above
- ○ 0
- ◉ Randomly generated number ✓

✓ TCP assigns a sequence number to each segment that is being sent. The sequence number for each segment is the number of the _____ byte carried in that segment. * 2/2

- (●) First ✓
- ( ) Middle
- ( ) Last
- ( ) None of the above

✓ Communication in TCP is _____. * 2/2

- ( ) Half-Duplex
- ( ) None of the above
- (●) Full-Duplex ✓
- ( ) Simplex

✓ The acknowledgment number in TCP is _____. * 2/2

- (●) Cumulative ✓
- ( ) Independent
- ( ) None of the above
- ( ) Randomly generated

✓ The connection establishment procedure in TCP is susceptible to a serious security problem called the _____ attack. * 2/2

- ( ) ACK flooding
- ( ) FIN flooding
- ( ) none of the above
- (•) SYN flooding ✓

✓ In UDP there is a loss of datagrams because * 1/1

- ( ) UDP sends each datagram only once
- ( ) Network gives less priority to UDP packets
- (•) UDP does not have a retransmission and tracking mechanism ✓
- ( ) The datagram tend to travel along different paths and tend to get lost

✓ TCP sliding windows are _____ oriented. * 1/1

- (•) Byte ✓
- ( ) Segment
- ( ) None of the above
- ( ) Packet

✓ The options field of the TCP header ranges from 0 to _____ bytes. * 2/2

- (●) 40 ✓
- ( ) 20
- ( ) 30
- ( ) 10

✓ What is the function of a router? * 1/1

- ( ) Converting the data from one format to another
- ( ) None of the above
- (●) Forward the packet to the up links ✓
- ( ) Error detection in data

✓ Which in not the packet drop mechanism used by router? * 1/1

- ( ) Drop Tail
- ( ) RED
- (●) Fast Recovery ✓
- ( ) AQM

✓ Switching in router can be done using * 1/1

- (●) Both option 1 and option 2 ✓
- ( ) Memory
- ( ) None of the option 1 and option 2
- ( ) Bus

✓ How to update the congestion window and ss_threshold value If there is a time-out in fast recovery mechanism of TCP Congestion control * 2/2

- ( ) ssthresh=cwnd/2 ; cwnd=1 MSS
- ( ) ssthresh=cwnd/2 ; cwnd=cwnd+MSS
- ( ) ssthresh=cwnd/2 ; cwnd=ssthresh+3•MSS
- (●) ssthresh=cwnd/2 ; cwnd=1 ✓

✓ Which of the following is not a field in TCP header? * 1/1

- (●) Fragment offset ✓
- ( ) Sequence number
- ( ) Checksum

✓ A device is sending out data at the rate of 2000 bps. How long does it take to send a file of 2,00,000 characters ? * 1/1

- ○ 400ms
- ◉ 800ms ✓
- ○ 1200ms
- ○ 200ms

✗ Which of the following control fields in TCP header is used to specify whether the sender has no more data to transmit? * 0/1

- ○ RST
- ○ SYN
- ◉ PSH ✗
- ○ FIN

Correct answer

- ◉ FIN

✓ Which of the following protocols uses both TCP and UDP? * 1/1

- ○ SMTP
- ○ Telnet
- ◉ DNS ✓
- ○ FTP