2022 CSPC26 Mid Semester II

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Questions

A network uses stop-and-wait protocol with channel capacity of of 128 kbps and 30 ms one way propagation delay. Assume that A=0 and H=0. What should be minimum frame size in bytes to achieve a link utilization of at least 50%. (Write answer in numeric only)

Your answer

Consider sender and Receiver connected by a channel with a transmission rate of 1 Mbps with a packet size of 2000 bytes. Assume the RTT is 30msec.The channel utilization if the sender uses stop and wait protocol is.....%.

Your answer

Subnet prefix	Mask	I/P
171.69.0.0	255.255.0.0.	R_1
171.69.10.0	255.255.255.0	R_2
171.69.11.0	255.255.254.0	R_3
171.69.1.0	255.255.254.0	R_4

On which interface will a packet destined to 171.69.10.5 be sent?

- R1
- R2
- R3
- R4

N stations share 128Kbps of slotted Aloha channel. Every station output names of length 1000 bits on an average of every 40seconds. Then what is the maximum value N? (Write integer value only)

Your answer

Select false statement about Piggybacking protocol:

- ◯ Data and acknowledgement are sent in the same frame.
- ◯ It works in half duplex mode.
- ◯ Ack contain only 1 bit.
- ◯ It use for flow control.
- ◯ None of the above

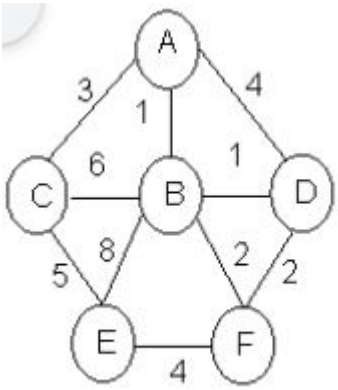
An IP fragment has an offset = 370. The MTU is 1500 bytes and IP header is 20 bytes long. At _____ byte will this fragment be inserted at the time of packet assembly at the receiver?

Your answer

A 6 km long broadcast LAN has 10^7 bps bandwidth and uses CSMA/CD. The signal travels along the wire at 4 x 10^8 m/s. The minimum packet size that can be used on this network is _____ bits (Write numerical value only)

Your answer

Consider a network with 6 routers A to F connected with links having weights shown in the diagram. All routers uses distance vector routing algorithm to update their routing table. What will be the path between router A and E after stability.



- A->B->E
- A->B->F->E
- A->C->E
- A->B->D->F->E

The router connecting a company's network to the internet applies the mask 255.255.255.192 to the destination address of incoming IP packets. If one of the incoming packet has a destination address of 154.33.7.220, then find the network ID, subnet bits and host ID bits of incoming packets respectively

- 154.33.7, 11, 011100
- 154.33, 11000000, 011100
- 154.33, 0000011111, 011100
- 154.33.7, 011111, 011100

Consider the following routing table on an IP router

Network No.	Net Mask	Next Hop
198.96.144.0	255.255.240.0	Interface-0
198.96.192.0	255.255.240.0	Interface-1
198.96.96.0	255.255.240.0	R_2
198.96.96.0	255.255.224.0	R_3
0.0.0.0	Default	R_4

Match List-I with List-II and select the correct answer using the codes given below the lists:

List-I	List-II
A 198.96.199.92	1 Interface 0
B 198.96.105.151	2 Interface 1
C 198.96.230.121	3 R_2
D 198.96.119.121	4 R_3
	5 R_4

Codes:

	A	B	C	D
(a)	1	3	5	4
(b)	1	4	2	5
(c)	2	3	4	5
(d)	2	3	5	4

- ○ A
- ○ B
- ○ C
- ○ D

Consider a selective repeat sliding window protocol that uses a frame size of 2 KB to send data on a 2 Mbps link with a one-way latency of 40 msec. To achieve a link utilization of 50%, the minimum number of bits required to represent the sequence number field is . .. (Write numerical value only)

Your answer

An IP datagram of size 2000 bytes arrives at a router. The router has to forward this packet on a link whose MTU (maximum transmission unit) is 100 bytes. Assume that the size of the IP header is 20 bytes. The number of fragments that the IP datagram will be divided into for transmission is : ___

Your answer

The maximum length of the cable (in km) for transmitting data at a rate of 10Mbps in an ethernet LAN with frames of size 288 bits and the speed of propagation is 200 m/µsec _____. (Upto 1 decimal place)

Your answer

An organization is granted the block 112.76.0.0/16. The administrator wants to create 256 subnets. What will the subnet mask for last subnet?

- 255.255.255.0/24
- 255.255.255.128/25
- 255.255.255.192/26
- 255.255.255.224/27

Which of the following is private IP address?

- 12.0.0.1
- 168.172.19.39
- 172.15.14.36
- 192.168.24.43

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