Mid-Semester Examination, September 2021

Department of Computer Science and Engineering

Subject: Computer Networks

Course Code: CSL 1501

Full Marks: 15

Time: 1 hour

1. Explain the techniques involved in achieving quality of service under traffic congestion. (3)
2. Explain the role of network address translation in brief with an example. (3)
3. Explain the DHCP operation and the issues present in it. (2)
4. Define CIDR. Find the CIDR value for the given subnetmask 255.255.255.254. (2)
5. Differentiate between classful and classless addressing. (2)
6. For the given IP address 192.168.20.0, find its subnetmask and construct 20 sub-networks. Also find the hosts per network. (3)

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Mid – Semester Examination, Odd Semester 2022

Computer Networks (CSL1501)

5th Semester (CSE) **Full Marks: 30 marks** **Duration: 1:30 hours**

Answer all 3 (Three) Questions. All Questions Carry Same Marks
(3 * 10 = 30 Marks)

1. a)What is computer networks? [2]
b) Explain the Different Type of Computer Networks. [3]
c) What do you mean by Network criteria? Explain It. [5]

OR

a) What is the role of physical layer in OSI model? Explain it. [2]
b) What do you mean by ISO organisation? [3]
c) What is the difference between TCP/IP and OSI model? Explain it. [1+4]

2. a)If 100100 data has to be sent and the divisor is 1101 in CRC then what would be received data if no error occurs? [3]
b) In Go-Back-N ARQ if 4 frames are sent and if ACK 4 arrives then the sender will send which frame. [2]
c) Briefly explains flow control techniques. [5]

OR

a. A sender sends a series of packets to the same destination using 5 bit sequence numbers. If the sequence number starts with 0 what is the sequence number after sending 100 packets? [2]
b) A bit string 0111101111101111110, needs to be transmitted at the data link layer. [3]
c)What is the string actually transmitted after bit stuffing? Explain various framing methods? [5]

3. a)What is sub-netting? [2]

b) In class-full addressing how is an IP address in class A, Class B and Class C divided? [3]

c) Given the address 23.56.7.91 and the default class A mask, find the beginning address (network address). [5]

OR

a) Given the address 201.180.56.5 and the default class C mask, find the beginning address (network address). [5]

b) What is a host-id and net-id? [2]

c) Briefly explain the functionality of computer network layer. [3]

****-Best of Luck****

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End-Semester Examination, Odd Semester-2022
Computer Networks (CSL 1501)

Answer All Questions. All Questions Carry Same Marks
(5 * 10 = 50 Marks)

1. Explain the following with proper justification in brief with examples if applicable.
[02x05=10 Marks]

(a) In cases where reliability is not of primary importance, UDP would make a good transport protocol. Give examples of specific cases.

(b) UDP is a message-oriented protocol. TCP is a byte-oriented protocol. If an application needs to protect the boundaries of its message, which protocol should be used, UDP or TCP?

(c) What is the definition of bursty data?

(d) In the hierarchical namespace ,the tree can have only 128 levels: level 0 (root) to level 127? (True/False)

(e) The inverse domain is used to map an address to a name. (True/False)

2. (a) What is an advantage of a hierarchical name space over a flat name space for a system the size of the Internet? [03 Marks]

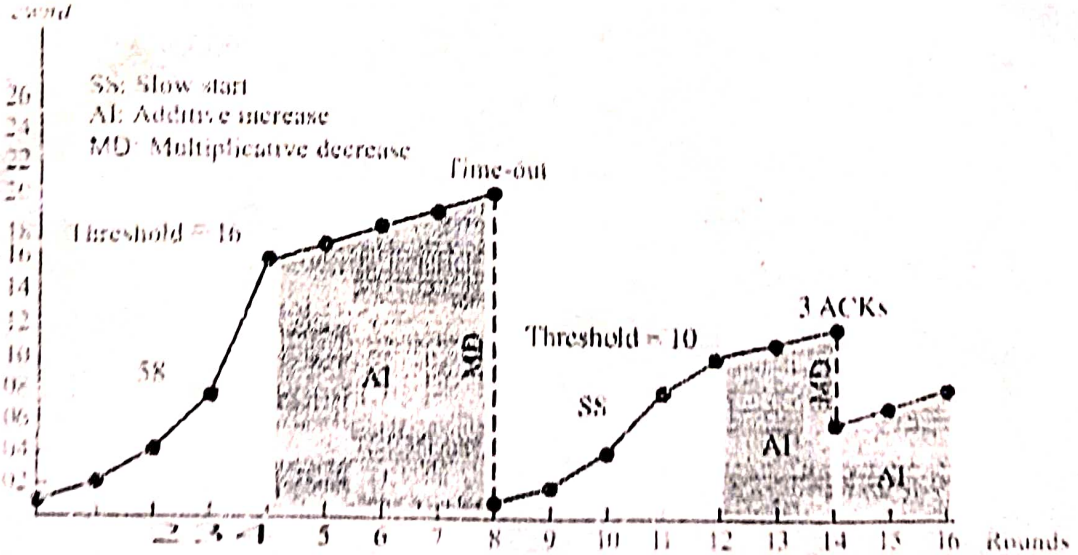
(b) Explain the DNS query and response message along with their common header format.
[03 Marks]

(c) Briefly describe name-address resolution that maps name to an address or an address to a name. You may give a supportive diagram for this scenario. [04 Marks]

3. (a) As traffic shaping is a mechanism to control the amount and the rate of the traffic sent to the network through leaky bucket and token bucket. Explain the mechanism of a leaky bucket to smooth out bursty traffic. [05 Marks]

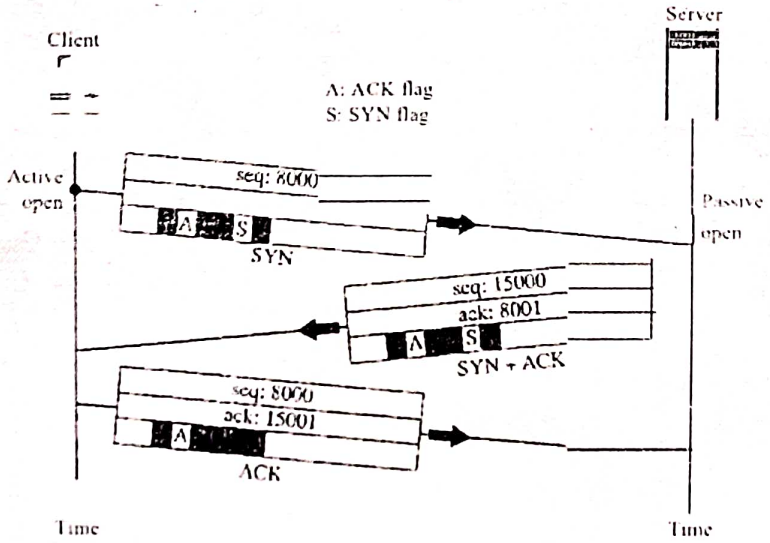
(b) What are the drawbacks of a leaky bucket mechanism and how token bucket has resolved it.
[05 Marks]

4. (a) Explain the below figure about network traffic with the help of slow start, additive increase and multiplicative decrease phenomenon. [02+03+02 = 07 Marks]



(b) In a connection, the value of **cwnd** is 3000 and the value of **rwnd** is 5000. What should be the size of data that can be sent? If The host has sent 2000 bytes which has not been acknowledged then how many more bytes can be sent? [01+02=03 Marks]

5. ~~(a)~~ Explain the below figure with the proper steps about the TCP connection establishment phase. [05 Marks]



(b) A TCP connection is using a window size of 10,000 bytes, and the previous acknowledgment number was 22,001. It receives a segment with acknowledgment number 24,001 and window size advertisement of 12,000. Draw a diagram to show the situation of the window before and after. [05 Marks]