

Dayananda Sagar College of Engineering

Department of Electronics & Communication Engineering

Continuous Internal Evaluation - III

Course Name : Computer Communication Networks	Date : 07/07/2022
Course Code : 19EC6DCCCN	Day : Thursday
Semester : VI	Timings : 1:00PM-2:30PM
Max Marks : 50 M	Duration : 1½ Hrs.

No.	Question Description	Mks	CO & Levels
Q1	(a) Header size of the UDP datagram is _____. (i) 8 bytes (ii) 8 bits (iii) 16 bytes (iv) 16 bits	1	
	(b) In TCP, if the HLEN field is 8, then the length of the Header is _____. (i) 20 bytes (ii) 60 bytes (iii) 8 bytes (iv) 32 bytes	1	
	(c) In the domain name - dsce.ece.ccn.edu, _____ is the most specific label. (i) dsce (ii) edu (iii) ece (iv) ccn	1	
	(d) In the process of fetching a web page from a server the HTTP request/response takes _____ RTTs. (i) 2 (ii) 3 (iii) 4 (iv) 1	1	
	(e) _____ is the variation in delay for packets belonging to the same flow. (i) Reliability (ii) Propagation delay (iii) Bandwidth (iv) Jitter	1	
	(f) Which of the following is an application layer service? (i) Network virtual terminal (ii) File transfer, access, and management (iii) Mail service (iv) All of the mentioned	1	
	(g) SNMP is the framework for managing devices in an internet using the _____. (i) TCP/IP protocol (ii) UDP (iii) SMTP (iv) None of these	1	
	(h) In TCP, one end can stop sending data while still receiving data. This is called a _____. (i) half-close (ii) half-open (iii) one-way termination (iv) None of these	1	
	(i) Data transfer mode of FTP, in which all the fragmenting has to be done by TCP is _____. (i) Message mode (ii) Compressed mode (iii) Stream mode (iv) Block mode	1	
	(j) HTTP uses the services of _____ on well-known port 80. (i) UDP (ii) IP (iii) TCP (iv) none of these	1	
Q2	Elaborate in detail the three phases of congestion control mechanism used in TCP with necessary diagrams.	10	CO5/L3
Q3	With the necessary diagrams elaborate the different scenarios that can be used to describe the architecture of e-mail.	10	CO6/L3
Q4	Discuss the different techniques used to improve the Quality of Service OR	10	CO5/L3
Q5	Outline the difference between recursion resolution from iterative resolution with neat diagram.	10	CO6/L4
Q6	Discuss in details the functions of a network management system. OR	10	CO6/L3
Q7	(a) Give the details of UDP user datagram. (b) Describe briefly the Control field of TCP segment.	5 5	CO5/L4 CO5/L3



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 (Accredited by National Assessment & Accreditation Council (NAAC) with 'A' grade)

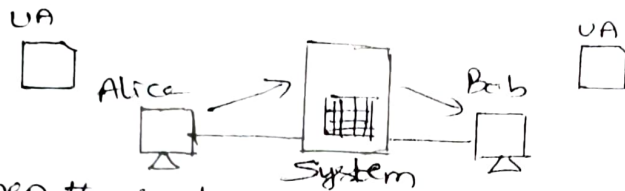


Date of test : 11/07/2023	Title of the subject	Max Marks : 50 M.
Day : Monday	Computer Communication Networks	Sub Mentor : Prof. Tripti S Tagore
Branch : ECE	Sub initials : CCN	Sub Mentor Sign : <i>[Signature]</i>
Semester : 6	Sub Code : 19EC6DCCCN	Staff i/c of sec : CSN, SR, SAS
Section : A, B, C, D	Internal Test	Staffs i/c sign : <i>[Signature]</i>
Timings : 2.00 - 3.30 PM	III	HOD Name : Dr. TCM
Test Duration : 1½ Hrs.	Test Solutions	HOD's sign :

Q. No.	Test question paper solutions with steps	Marks Allocation
1)	<p>a) i) 8 bytes b) iv) 32 bytes c) i) dsce d) iv) 1 e) iv) Jitter f) iv) All of the mentioned g) i) TCP/IP protocol h) i) Half close i) iii) Stream mode j) iii) TCP</p>	1 X 10 = 10
2)	<p>3 phases of Congestion Control mechanism in TCP</p> <p>1) Slow Start : Exponential Increase.</p> <p>Start \rightarrow $Cwnd = 1$ After round 1 $\rightarrow Cwnd = 2^1 = 2$ After round 2 $\rightarrow Cwnd = 2^2 = 4$ After round 3 $\rightarrow Cwnd = 2^3 = 8$</p> <p>2) Congestion Avoidance : Additive increase</p> <p>Start \rightarrow $Cwnd = 1$ After round 1 $\rightarrow Cwnd = 1 + 1 = 2$ After round 2 $\rightarrow Cwnd = 2 + 1 = 3$ After round 3 $\rightarrow Cwnd = 3 + 1 = 4$</p> <p>3) Congestion Detection : Multiplicative Decrease</p> <p>\rightarrow If detection is by Time out, a new slow start phase starts \rightarrow If detection is by 3 ACKs, a new congestion avoidance phase starts.</p> <p>Explanation - 2+2+2 Diagrams - 4 } 10</p>	10

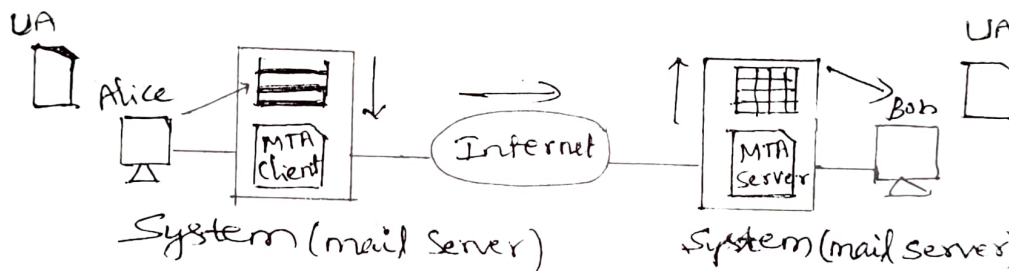
3

Four Scenarios in email architecture.

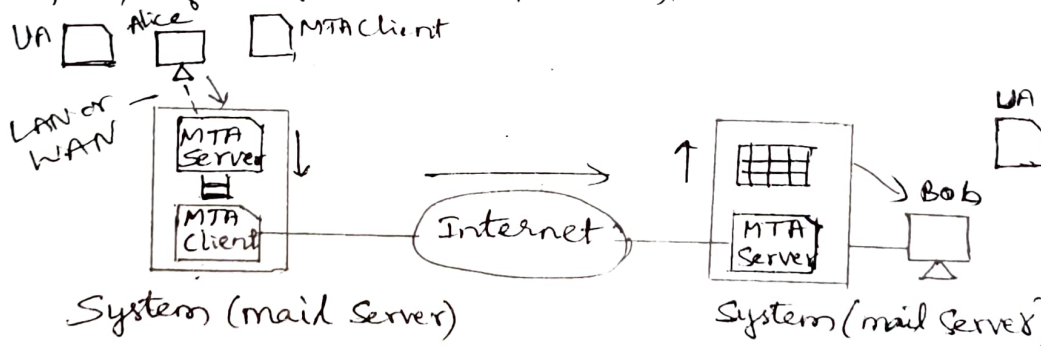
First ScenarioExplanation -
Diagrams -5 }
5 } 10

When the sender & receiver of an email are on the same System, we need only 2 User agents.

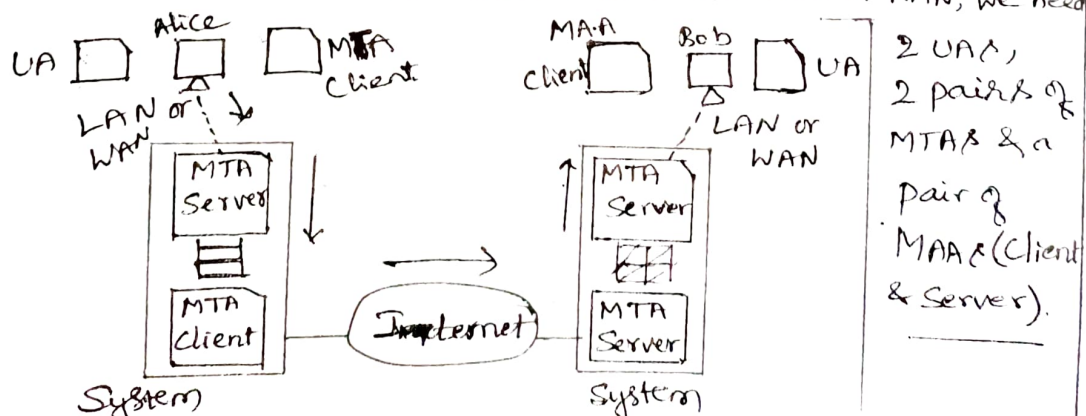
Second Scenario - When the sender & receiver of an email are on different Systems, we need 2 UAs & pair of MTAs (Client & Server):



Third Scenario - When the sender is connected to the mail Server via a LAN or a WAN, we need 2 UAs & 2 pairs of MTAs (Client & Server).



Fourth Scenario - When both sender & Receiver are connected to the mail Server via LAN or WAN, we need



2 UAs,
2 pairs of
MTAs & a
pair of
MAAs (Client
& Server).

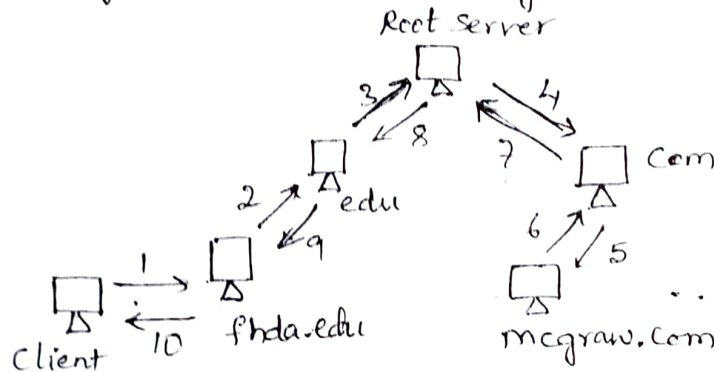
4) Techniques to improve QoS.

- 1) Scheduling - FIFO Queuing, Priority Queuing & Weighted fair Queuing
- 2) Traffic Shaping - Leaky Bucket & Token Bucket
- 3) Admission Control &
- 4) Resource Reservation

4
5
1
10

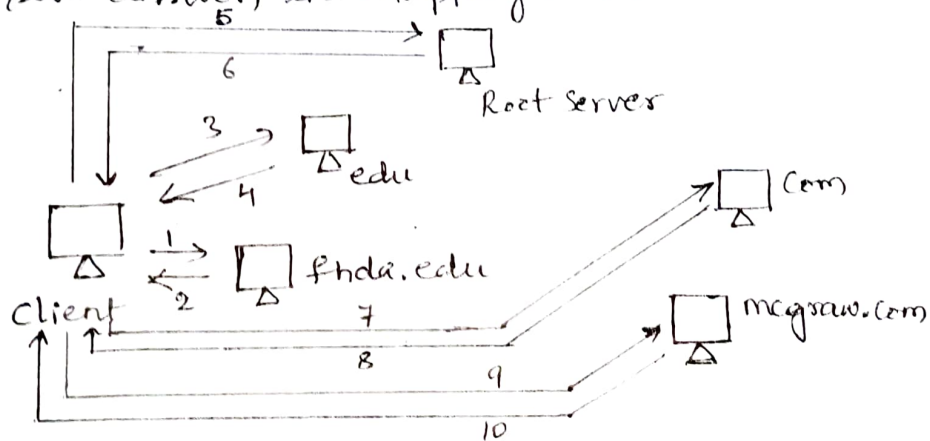
5) Recursive Resolution & Iterative resolution

Recursive Resolution - The client (resolver) can ask for recursive answer from a name server. When the query is finally resolved, the response travels back until it finally reaches the requesting client.



Diagrams - 4
Differences - 6
10

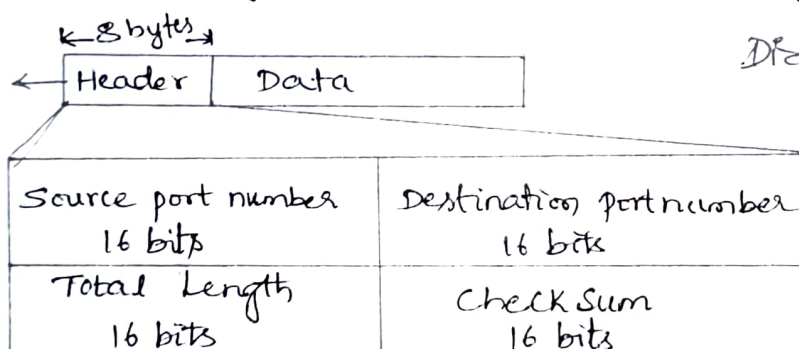
Iterative Resolution - If the client does not ask for a recursive answer, the mapping can be done iteratively.



6) functions of a network management system. with expansion

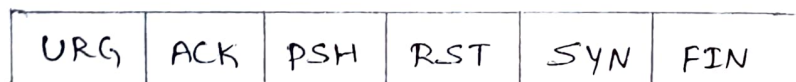
- | | | | |
|---|-----|---|----|
| 1) Configuration management - Reconfiguration, documentation | - 2 | } | 10 |
| 2) Fault management - Reactive, Proactive | - 2 | | |
| 3) Performance management - Capacity, Traffic, Throughput, Response time. | - 4 | | |
| 4) Security Management | - 2 | | |
| 5) Accounting Management | - 2 | | |

7) a) UDP user Datagram



Explanation - 3
Diagram - 2 } 5

b) Control field of TCP Segment.



field format - 2
Explanation - 3 } 5

URG - Urgent pointer is valid

ACK - Acknowledgement is valid

PSH - Request for push

RST - Reset the Connection

SYN - Synchronize Sequence numbers

FIN - Terminate the Connection.