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Intake: 28/2
course: Computer Networks
course code: CSE-319

Answer to the Question No-1-a

The main advantage that packet switching has over circuit switching is its efficiency. Packets can find their own data Paths to their destination address without the need for a dedicated channel. In contrast, in-circuit switching network devices can't use the channel until the voice communication has been terminated.

Compare TCP, IP and UDP Protocals: TCP, IP and UDP compare below connection versus connectionless. TCP/IP is a connection based protocol, while UDP is a connectionless protocol. In TCP/IP, the two ends of the communication link must be connected at all time during the communication.

Answer to the Question No - 1 - b

In the SMTP mode user deals with user agent (UA), for example, microsoft outlook, netscape Mozilla, etc. In order to exchange the TCP, MTA is used.
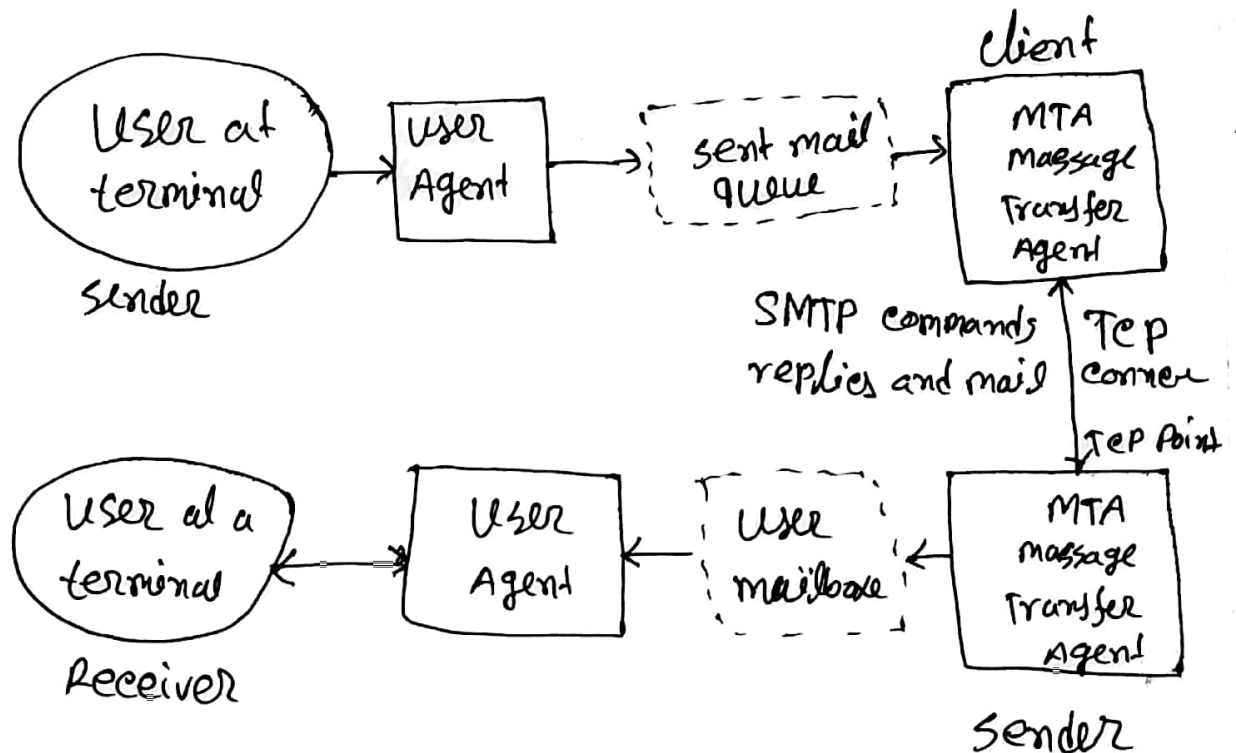
Answer to the Q: No- 2-a

Packet switching is a connectionless network switching technique. Here the message is divided and grouped into a number of units called packets that are individually router from the source to the destination.

Most packet switching use store-and forward transmission at the input to the link.

Store-and forward transmission means that the packet switch must receive the the entire packet before it can begin to transmit the first bit of the packet onto the outbound link. so when the source send the packet through router.

Answer to the Question No- 2-b

The Hypertext Transfer Protocol (HTTP) is an application-level protocol for distributed collaborative hypermedia information system.

The client and server communication for an extended period of time, with the client making a services of request and server responding to each of the requested. In the formar approch the application is siad to use non-persistent connection and in the approch persistent connection.
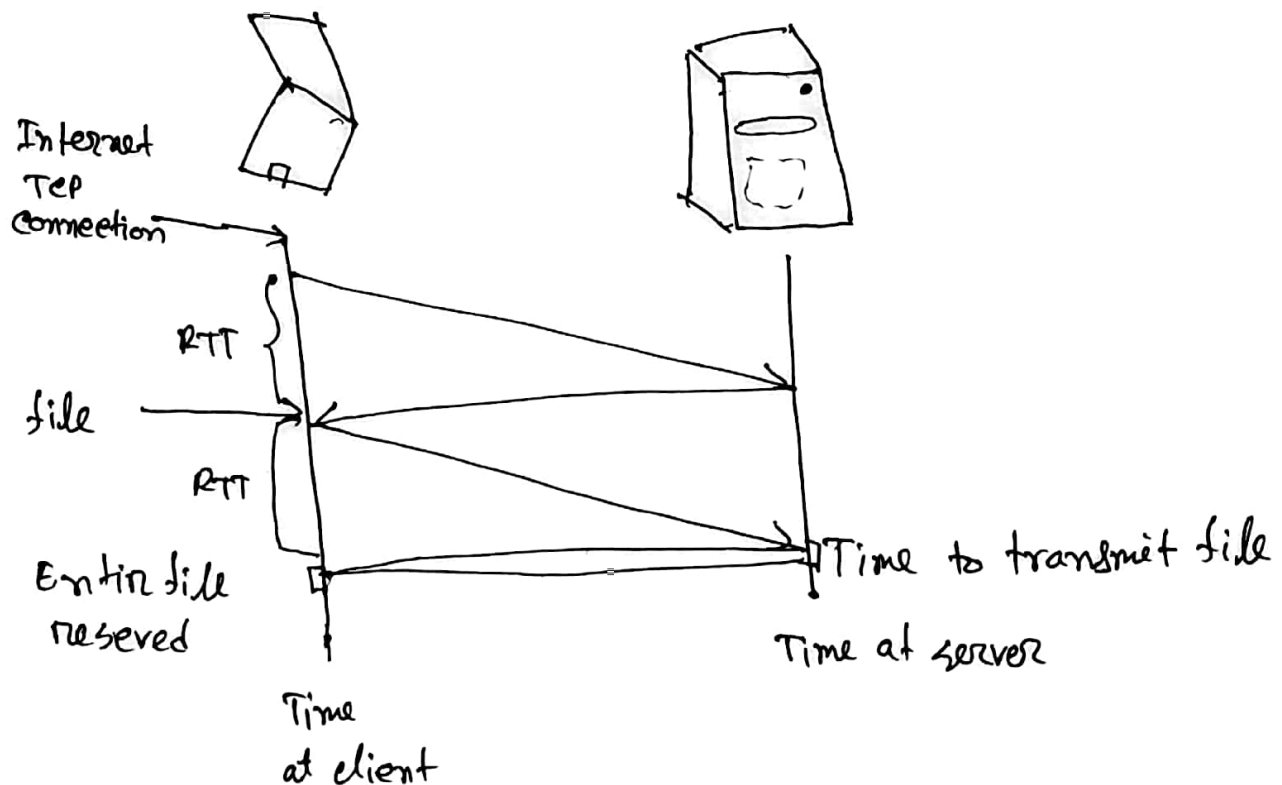
* Non-Persistent connection-

* Each request / response pairnbe send over a separate TCP connection.

* The HTTP client process initiates a TCP connection to the server Associated

with the TCP connection,

* The HTTP client sends an HTTP request message to the server via its socket.

Internet
TCP
Connection

RTT

file

RTT

Entin file
reseved

Time
at client

Time to transmit file

Time at server

example:

     GET / somedin / page.html

     Host: www. some school.com

   Connection: close

   user-agent: Mozilla / 5.0

   Accept-language: En

Answer to the Question NO-3-a

Ans: cryptography is associated with the process of converting ordinary plain text into unintelligible text and vice versa.

⊞ Principal of cryptography

* cryptogaphyie techniques allow a sender to disduise data so that an intruder can gain no information from the terceeped data.

* The receiver of course must be able to recover the original data from the disguised data

*If a user wants to send a massage to another user. then massage in its original form is know as plaintext.

* User provide a key kn a string of number as input to the encrption algorithm.

* The encryption algorithm taues the key and the plain text as input and produce cipher text as output.

* The notation $K_A(m)$ refers to the cipher text from of the plain text massage, m.

* User receives an encrypted massage $K_A(m)$, he decrypts it by computing $K_b(K_A(m)) = m$

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
Plain text a	b	c	d	e	f	g	h	i	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
$c_1 = 8$ i	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	a	b	c	d	e	f	g	h
$c_2 = 4$ e	f	g	h	i	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	a	b	c	d

Pattern: $c_2 c_1 c_2 c_2 c_1 c_2 c_1, c_2 c_1 c_2 c_2$
$c_1 c_2 c_1, c_2 c_1 c_2 c_2 c_1 c_2 c_1,$
$c_2 c_1 c_2 c_2 c_1 c_2 c_1,$

Plaintext: " Independence Day of Bangladesh "

ciphertext: MVhixivhMRgm hie wJ fiRoPiniaL

Answer to the Question No- 3-b

addresses: 180.100.0.0

① Ans: First usable host address = 180.100.0.1

② Ans: host address: 180.100.255.254

③ Network address = 180.100.0.0

Broadcast address = 180.100.255.255

④ IP Address: 180.100.0.0 for class B

⑤ 65534