FACULTY OF TECHNOLOGY
B.TECH. SEMESTER V [Information Technology]
SUBJECT: (IT-505) Computer And Communication Network

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Examination	: Second Sessional	Seat No.	:
Date	: 3/09/2014	Day	:Wednesday
Time	: 11:15 to 12:30	Max. Marks	: 36

INSTRUCTIONS:

1. Figures to the right indicate maximum marks for that question.
2. The symbols used carry their usual meanings.
3. Assume suitable data, if required & mention them clearly.
4. Draw neat sketches wherever necessary.

Q.1 Do as directed.

A Consider the diagram shown below, an IP packet originates from sender S and traverses to destination D.The initial value of TTL is 32.Then what the maximum possible value of TTL field is when it arrives at D? **[2]**

S → R1 → R2 → R3 → R4 → D
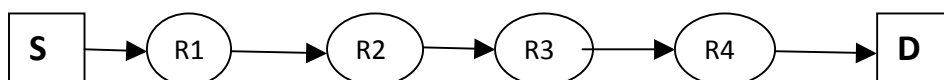
B Host A (on TCP/IP v4 network A) sends an IP datagram D to host B (also on TCP/IP v4 network **[2]** B). Assume that no error occurred during the transmission of D. When D reaches B, which of the Following IP header field(s) may be different from that of the original datagram D?
(i) TTL (ii) Checksum (iii) Fragment Offset
(A) (i) only   (B) (i) and (ii) only   (C) (ii) and (iii) only   (D) (i), (ii) and (iii)

C What do you mean by loop back address? Give an example. **[2]**

D Name the techniques which are used for achieving good quality of service? **[2]**

E What do you mean by reverse path forwarding? **[2]**

F Define migratory host. **[2]**

Q.2 Attempt Any TWO of the following questions.

a (I)Let us consider a subnet mask 255.224.0.0. Find out class and number of sub networks. **[2]**
(II)You are given the following address 153.50.6.27/25. Determine the subnet mask; address class, subnet **[2]** address and broadcast address.
(III)Given the mask 255.255.254.0, how many host per subnet does this create? **[2]**

b A datagram of 4000B (including 20B of IP header) arrives at a router and must be forwarded to a link with MTU of 1500 byte.
(I)How many fragments are needed to allocate the data part of the original datagram? **[2]**
(II)What is the data size contained in the last fragment? **[1]**
(III)IF the original datagram is stamped with an identification number of 557 then what is the identification **[1]** number of the last fragment?
(IV)What will be the offset of the second segment? **[2]**

c A router has the following entries in the routing table: **[6]**

Address/mask	Next hop
135.46.56.0/22	interface 0
135.46.60.0/22	interface 1
192.53.40.0/23	router 1
Default	router 2

For each of the following ip addresses what does the router do if a packet with that address arrives?
(I) 135.46.63.10   (II) 135.46.52.2   (III) 192.53.40.7

Q.3(a) Consider a directed graph shown in fig.1 there are multiple shortest path between vertices S and T. Which one **[6]** will be reported by Dijkstra's algorithm? Assume that, in any iteration, the shortest path to vertex v is updated only when strictly shorter path to v is discovered.

Q.3(b) Explain congestion control policies in Virtual circuit and datagram subnet. **[6]**

-OR-

Q.3(a) Assume the following hosts are present in the local network **[6]**
Host A :IP-192.192.192.100, MAC-1A-23-F9-CD-06-9B   Host B :IP-192.192.192.101, MAC-88-B2-2F-54-1A-0F
Host C:IP-192.192.192.102, MAC-48-BD-D2-C7-56-2A   Host D:IP-192.192.192.103, MAC-5C-66-AB-90-75-B1
(1)Suppose Host A send the ARP request to find the MAC address of the Host C and Host C sends back the ARP reply. What is the destination MAC address in ARP request packet and reply packet?
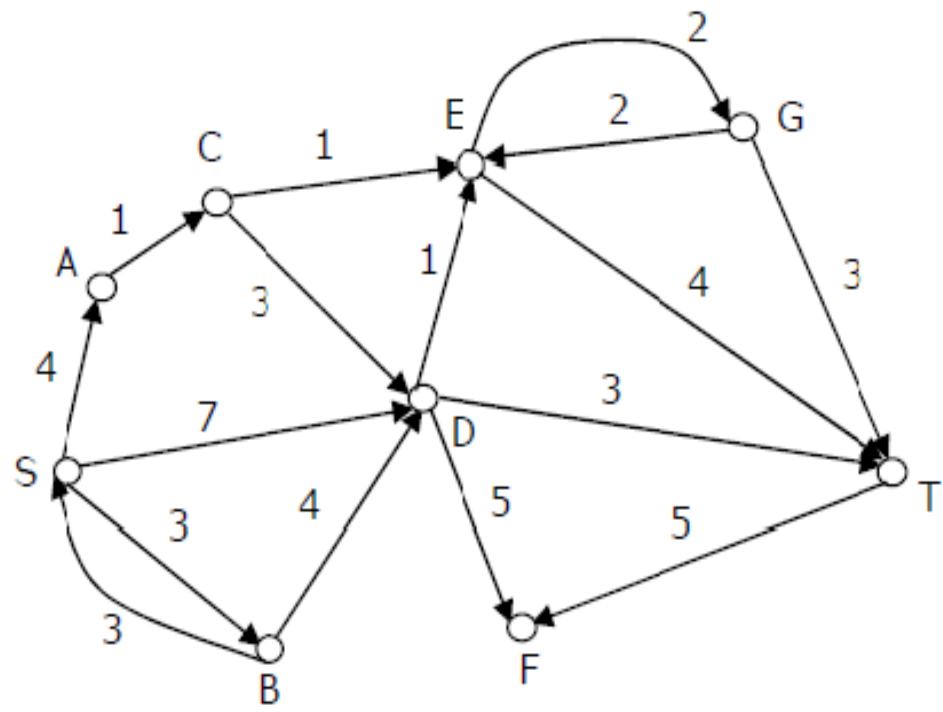(2) Suppose Host A send the ARP request to find who owns IP address 192.192.192.103.What is the

FIG 1.