University of Information Technology and Communications
College of Engineering
Department of Mobile Communications and Computing Engineering

Year/Semester: 3rd Year/ 1st Sem.
Time duration: 3 hrs.
Subject Title: Computer Networks I
Lecturer Name: Dr. Ali Hussein Ali
Date: / / 2024

Final Exam (Attempt)

يسمح بإستخدام الحاسبة العلمية ولايسمح بإستعارتها

Question 1: A datagram with a hexadecimal value of: **[10 Marks]**

45 00 00 64 00 03 00 00 69 06 00 00 E2 7D 51 77 DC E9 9E 1F

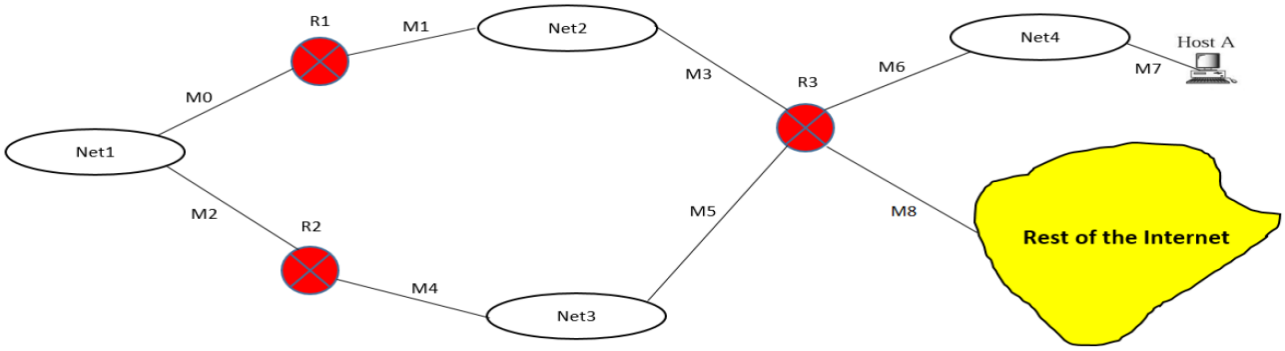
Find the following:
1- IP address of the sender in decimal.
2- IP address of the receiver in decimal.
3- How many routers can the packet travel to?
4- The length of data.
5- Is there any options in the datagram? Why?

Question 2: Subnet the network 170.170.60.0/22 into 3 subnets then find: **[10 Marks]**

- The broadcast address for the first subnet is _____.
- The network address for the second subnet is _____.
- The IP address of host number (70) in the first subnet is _____.
- The IP address of host number (90) in the second subnet is _____.
- The number of usable IP addresses of all hosts in the 3rd subnet is _____.

Question 3: **[10 Marks]**

For the following network topology, complete the routing table of router R1 by replacing the symbol (??????????) with the suitable answer, your answer should consider the following:
- Path between R1 and R3 through Net 2 is not safe.



Network	Mask	Next hop	Interface
Host A	??????????	??????????	??????????
Net 1	/20	----------	M0
Net 2	/20	----------	M1
Net 3	/20	??????????	??????????
Net 4	/20	??????????	??????????
Rest of Internet	??????????	??????????	??????????

University of Information Technology and Communications
College of Engineering
Department of Mobile Communications and Computing Engineering

Year/Semester: 3rd Year/ 1st Sem.
Time duration: 3 hrs.
Subject Title: Computer Networks I
Lecturer Name: Dr. Ali Hussein Ali
Date: / / 2024

Final Exam (Attempt)

Question 4: Re-arrange the following ARP steps in a right manner by replacing (??) with right ARP step number: **[10 Marks]**

Process	Step no.
The message is passed to the data link layer where it is encapsulated in a frame using the physical address of the sender as the source address and the physical broadcast address as the destination address	??
The sender receives the reply message. It now knows the physical address of the target machine	??
The sender knows the IP address of the target.	??
IP asks ARP to create an ARP request message, filling in the sender physical address, the sender IP address, and the target IP address. The target physical address field is filled with 0s	??
The IP datagram, which carries data for the target machine, is now encapsulated in a frame and is unicast to the destination.	??
The target machine replies with an ARP reply message that contains its physical address. The message is unicast	??
Every host or router receives the frame. Because the frame contains a broadcast destination address, all stations remove the message and pass it to ARP. All machines except the one targeted drop the packet. The target machine recognizes the IP address	??

Question 5: Choose A or B **[10 Marks]**

A/ Assign the following functions to their TCP/IP layer:

- Dialog control
- Transmission of bits
- Framing
- Routing
- Connection control

B/ List only the five components of any communication system**.**

Good Luck

Lecturer Head of the department