CS - 47 TEST

SHORT QUESTION (2x5 =10)

1. An IP packet has arrived in which the fragment offset value is 100, the value of HLEN is 5 and the value of total length field is 200. What is the number of last byte in packet.
2. In the network 200.10.11.144/27, the fourth octet (in decimal) of the last IP address of the network which can be assigned to a host is _____
3. What are all the fields required from IP header to allow the destination to perform reassembly of fragments?
4. What is the difference between unicast, multicast, and broadcast in IP addressing?
5. Consider an IP packet with a length of 4,500 bytes that includes a 20-byte IPv4 header and a 40-byte TCP header. The packet is forwarded to an IPv4 router that supports a Maximum Transmission Unit (MTU) of 600 bytes. Assume that the length of the IP header in all the outgoing fragments of this packet is 20 bytes. Assume that the fragmentation offset value stored in the first fragment is 0. The fragmentation offset value stored in the third fragment is _____

LONG QUESTION (2x5= 10 marks)

1. An organization is granted a block of addresses with the beginning address 14.24.74.0/24. The organization needs to have 3 subblocks of addresses to use in its three subnets: one subblock of 10 addresses, one subblock of 60 addresses, and one subblock of 120 addresses. Design the subblocks.
2. Consider the network shown in the figure below with four nodes. Cost links are shown in the diagram. Give the distance-vector routing tables for node C in the following two consecutive steps.
   Step 0: C knows the distances to its immediate neighbours and Step 1: information from step 0 is exchanged as per the distance-vector algorithm.