

CE3005: Computer Networks
Semester 1 2016-2017

Tutorial 2-1:
Network Layer - IP Addressing and Fragmentation

1. A university has been allocated the 155.69.0.0/16 address block. As the network administrator of the university, you have been asked to subnet the network. There are presently 10 schools in the university, and it may increase to 15 over the next few years. Currently, each school has a maximum number of host stations of 2000, but three schools are growing and may have 4000 hosts in a couple of years later. Determine the subnet address/subnet mask for each school.
2. An organization is assigned a /16 IP address block. The organization has created several subnets for its network. It is known that one of the subnets is 145.32.128.0/255.255.224.0. What is the broadcast address for this subnet?
3. Figure Q3 shows a network consisting of four subnets being interconnected by four routers. The integer on each link indicates the cost of that link. As a network engineer, you are allocated the IP address range 193.169.1.0/24 to support the network. Assign suitable IP address/subnet mask to each interface of the routers.

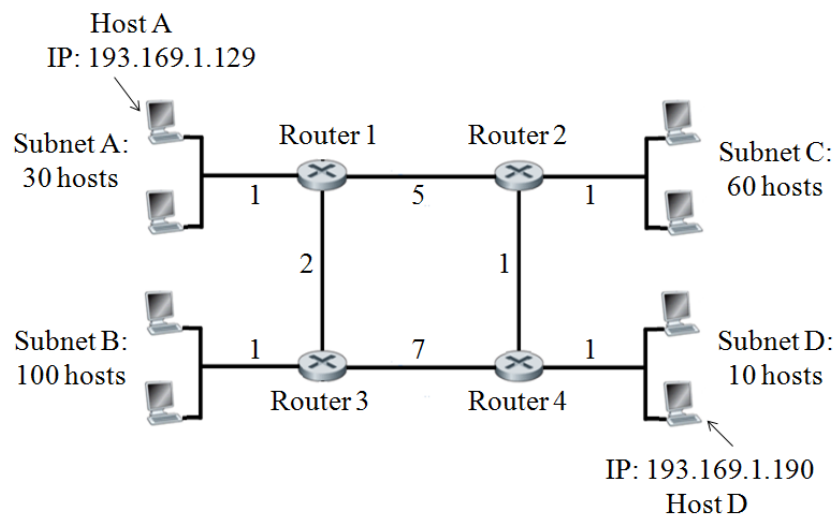


Figure Q3

4. Consider sending a 3000 byte datagram into a link that has an MTU of 500 bytes. Suppose the original datagram is stamped with the identification number 422. How many fragments are generated? What are their characteristics?