



FAST- National University of Computer and Emerging Sciences, Karachi.

FAST School of Computing Bonus Assignment, Spring 2023 CS3001- Computer Networks BONUS ASSIGNMENT (Subnetting)

Submission Guidelines:

- This is an individual bonus assignment. Student ID and section must be mentioned clearly.
- Only HAND WRITTEN submission will be acceptable.
- Submission date: Wednesday, 22nd March 2023 in the lecture room.
- This assignment has hard deadline and any late submissions won't be accepted.

Bonus Assignment (100 points)

Question #1: (40 points)

Identify:

- Address Class
- Default Subnet Mask
- Custom Subnet Mask
- Total Number of Subnets
- Total Number of Host Addresses
- Number of Usable Addresses
- Number of Bit Borrowed

For the problems mentioned below. (For each problem you have to show your calculations)

Problem 1:

Number of needed subnets = 14

Number of needed usable hosts = 14

Network Address = 192.10.10.0

Problem 2:

Number of needed subnets = 1000

Number of needed usable hosts = 60

Network Address = 165.100.0.0

Problem 3:

Network Address = 148.75.0.0 /26

(Note: /26 is CIDR Notation that indicates number of bits of network and sub network portion of the address. All bits remaining belong to the host portion of the address)

Question #2: (60 points)

Given below is a scenario in which there is an available IP Pool and IP's are to be assigned to 3 different companies. You have to perform sub-netting to efficiently assign IP's to each company. Show necessary calculations and result.

Following are the 3 Companies

1. Netcom
2. Cyber-Safe
3. CNSP-Zone

- Netcom has 50 hosts (PCs)
- Cyber-Safe has 48 hosts (PCs)
- CNSP-Zone has 120 hosts (PCs)

Available IP Pool is: 192.168.1.0/24 (255.255.255.0)

Your task is to make subnets of the IP given above and assign a range of IP addresses to all of these Companies.