



Spring 2022 CS610 P 2 - This is helping for students to  
prepare their final term exam

Computer Networks (Virtual University of Pakistan)



**Assignment No. 02**  
**Semester: Spring 2022**  
**CS610P: Computer Networks (Practical)**

**Total Marks: 20**

**Due Date: 30<sup>th</sup> August, 2022**

**Instructions:**

Please read the following instructions carefully before submitting assignment:

You need to use MS word and Packet Tracer tool to prepare and submit the assignment solution on VU-LMS.

It should be clear that your assignment will not get any credit if:

- The assignment is submitted after due date.
- The assignment is not in the required format (doc or docx).
- The submitted assignment does not open or file is corrupt.
- Assignment is copied (partial or full) from any source (websites, forums, students, etc.).

**Objective:**

To enhance the learning capabilities of the students about:

- IP Addresses and Subnetting
- CIDR (Classless Inter Domain Routing)
- Designing Network Topology
- Configuring DHCP Server
- Assigning IPv4 addresses on devices using DHCP

## Assignment

### Question No.1

Suppose an organization has a Class B network address of 180.22.1.0. The network of this organization is to be divided into 100 subnets, which will be interconnected by routers. Administration demands that at least 460 hosts will be needed per subnet. To fulfill this requirement, custom subnet mask of Class B needs to be used.

#### Part-1

You are required to find the followings:

1. New custom Subnet Mask
2. Number of bits that need to be borrowed from the host portion of the network address.
3. Number of usable subnets
4. Number of bits that will be left for host addresses.
5. Number of usable hosts

### Question No.2

#### Scenario:

Suppose XYZ University has planned to develop a computer network LAB for its students. There are many departments of this university including computer science, bio-informatics and Law department. The Law department consists of a small network of 7 PC's, 1 server and one switch. The overall infrastructure is designed in such a way that all the computers and server of this lab are connected to the switch of its network.

As a network administrator you are given a task to develop a Computer network LAB for this University with following requirements:

1. Design the network topology in the Packet Tracer as per scenario given above. You need to connect all the devices on appropriate interfaces and turn all the links up.
2. Label all devices as given below:

<b>Nodes/Devices</b>	<b>Labels</b>
Computers	MC123456_PC1, MC123456_PC2, MC123456_PC3, MC123456_PC4, MC123456_PC5, MC123456_PC6 MC123456_PC7
Server	DHCP_Server-LAB
Switch	SW_Your name

**Note:** Write your own VU ID and your own name for labeling.

3. Assign IP addresses to server as per following:

<b>Device</b>	<b>IP address</b>
DHCP_Server-LAB	194.16.5.5

4. Configure auto IP addresses on all PCs using DHCP server.

**Note:** You are required to perform all above Tasks using Packet Tracer Tool after that take screenshots and paste in MS Word File and submit that file on VULMS as your solution.

***Best of Luck!***