

**Lab Manual**

**Data Communication Networks**

**BCA324**

**III**

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To study network IP addresses across different classes (A, B, and C) using Cisco Packet Tracer, follow these steps to set up your network and configure devices:

1. Create the Network Topology:
   * Place the router in the center of your topology.
   * Connect each switch to the router using copper straight-through cables.
   * Connect PCs and laptops to the switches using copper straight-through cables.

1. Configure IP Addressing:
   * Class A Network:
   * IP Range: 10.0.0.0 to 10.255.255.255
   * Subnet Mask: 255.0.0.0
   * Example: Assign 10.0.0.1/8 to Router interface, 10.0.0.2/8 to a PC.

* + Class B Network:
  + IP Range: 172.16.0.0 to 172.31.255.255
  + Subnet Mask: 255.240.0.0
  + Example: Assign 172.16.0.1/12 to Router interface, 172.16.0.2/12 to a PC.

* + Class C Network:
  + IP Range: 192.168.0.0 to 192.168.255.255
  + Subnet Mask: 255.255.255.0
  + Example: Assign 192.168.1.1/24 to Router interface, 192.168.1.2/24 to a PC.

1. Configure PCs and Laptops:
   * Go to each PC and laptop.
   * Set static IP addresses, subnet masks, and default gateway according to the network class they belong to.

For PC or Laptop in Class A Network:

* + IP Address: 10.0.0.2
  + Subnet Mask: 255.0.0.0
  + Default Gateway: 10.0.0.1

\*For PC or Laptop in Class B Network:\*

* + IP Address: 172.16.0.2
  + Subnet Mask: 255.240.0.0
  + Default Gateway: 172.16.0.1

For PC or Laptop in Class C Network:

* + IP Address: 192.168.1.2
  + Subnet Mask: 255.255.255.0
  + Default Gateway: 192.168.1.1

1. Test Connectivity:
   * Use the ping command from each PC or laptop to test connectivity within the same network and to other networks.

1. Verify Routing:
   * Check if the router is correctly routing between different network classes.
   * Use commands like show ip route on the router to verify routing information.

By following these steps, you should be able to effectively study and test the IP address configuration across different classes in Cisco Packet Tracer.



