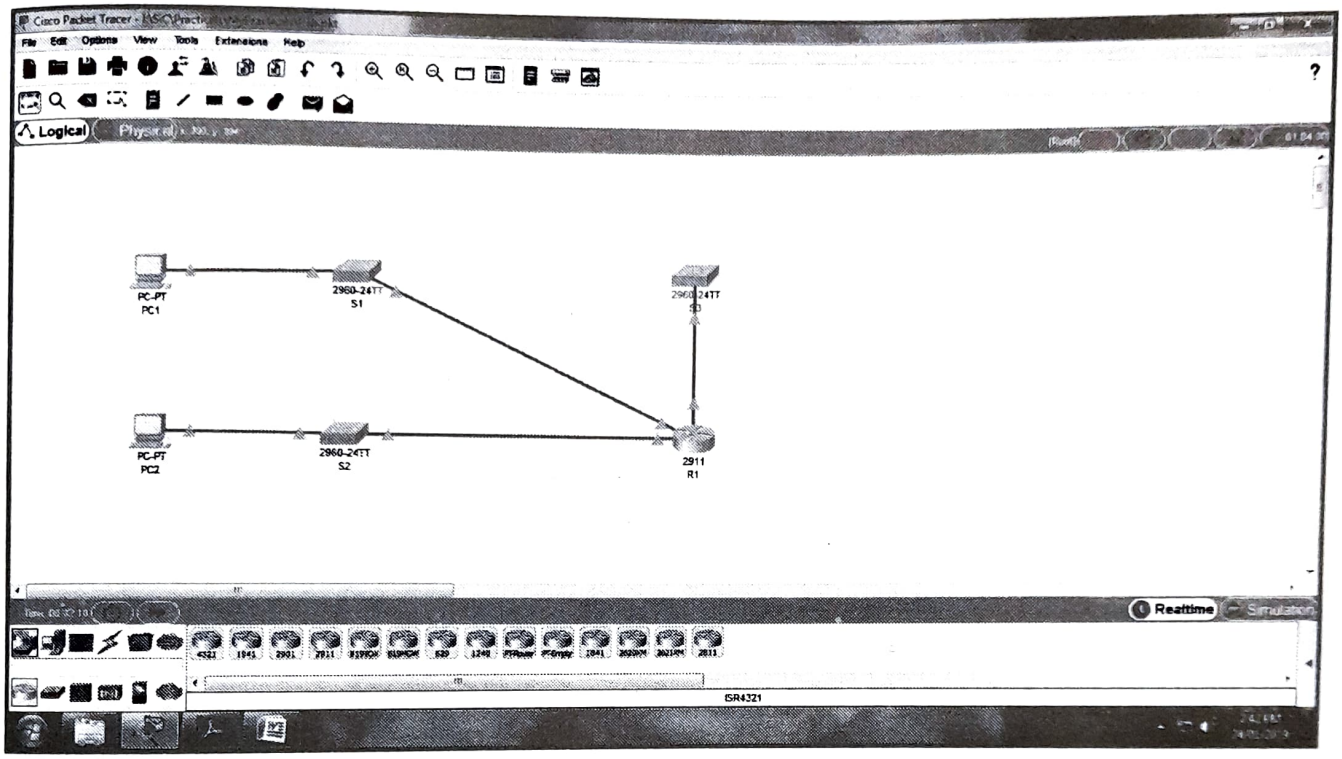
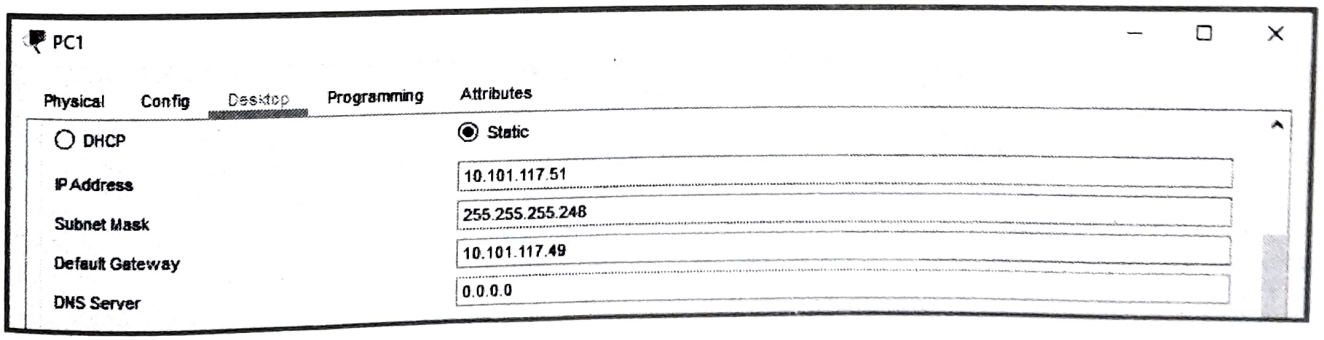
Practical 3(B)

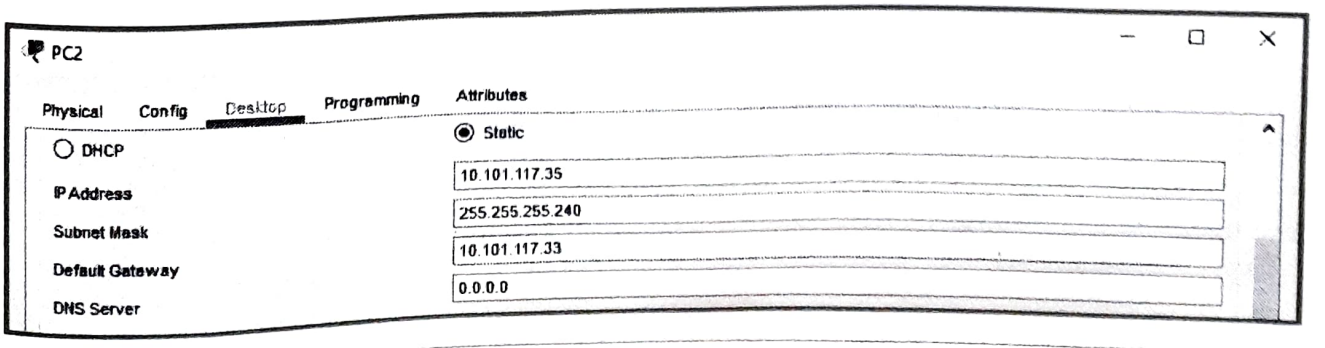
▶ **Aim : Configure, Apply and Verify an Extended Numbered ACL**

☞ Topology Diagram



☞ Assign IP Addresses





```
Router>en
Router#conf t
Router(config)#host R1
R1(config)#interface GigabitEthernet0/0
R1(config-if)#ip address 10.101.117.49 255.255.255.248
R1(config-if)#no shut
R1(config)#interface GigabitEthernet0/1
R1(config-if)#ip address 10.101.117.33 255.255.255.240
R1(config-if)#no shut
R1(config)#interface GigabitEthernet0/2
R1(config-if)#ip address 10.101.117.1 255.255.255.224
R1(config-if)#no shut
R1(config-if)#^Z
R1#exit
```

```
Switch>en
Switch#conf t
Switch(config)#host S1
S1(config)#interface vlan 1
S1(config-if)#ip address 10.101.117.50 255.255.255.248
S1(config-if)#no shut
S1(config-if)#exit
S1(config)#ip default-gateway 10.101.117.49
S1(config)#^Z
S1#exit
```

```
Switch>en
Switch#conf t
Switch(config)#host S2
S2(config)#interface vlan 1
S2(config-if)#ip address 10.101.117.34 255.255.255.240
S2(config-if)#no shut
S2(config-if)#exit
S2(config)#ip default-gateway 10.101.117.33
S2(config)#^Z
```

```
S2#exit
Switch>en
Switch#conf t
Switch(config)#host S3
S3(config)#interface vlan 1
S3(config-if)#ip address 10.101.117.2 255.255.255.224
S3(config-if)#no shut
S3(config-if)#exit
S3(config)#ip default-gateway 10.101.117.1
S3(config)#^Z
S3#exit
```

☞ Displaying IP Address Details

```
R1>show ip interface brief
Interface IP-Address OK? Method Status Protocol
GigabitEthernet0/0 10.101.117.49 YES manual up up
GigabitEthernet0/1 10.101.117.33 YES manual up up
GigabitEthernet0/2 10.101.117.1 YES manual up up
```

```
S1>show ip interface brief
Interface IP-Address OK? Method Status Protocol
Vlan1 10.101.117.50 YES manual up up
```

```
S2>show ip interface brief
Interface IP-Address OK? Method Status Protocol
Vlan1 10.101.117.34 YES manual up up
```

```
S3>show ip interface brief
Interface IP-Address OK? Method Status Protocol
Vlan1 10.101.117.2 YES manual up up
```

☞ ConfiguringTelnet on S3

```
S3>en
S3#conf t
S3(config)#username admin password teacher
S3(config)#line vty 0 4
S3(config-line)#login local
S3(config-line)# ^Z
S3#exit
```

☞ Configure, Apply and Verify an Extended Numbered ACL

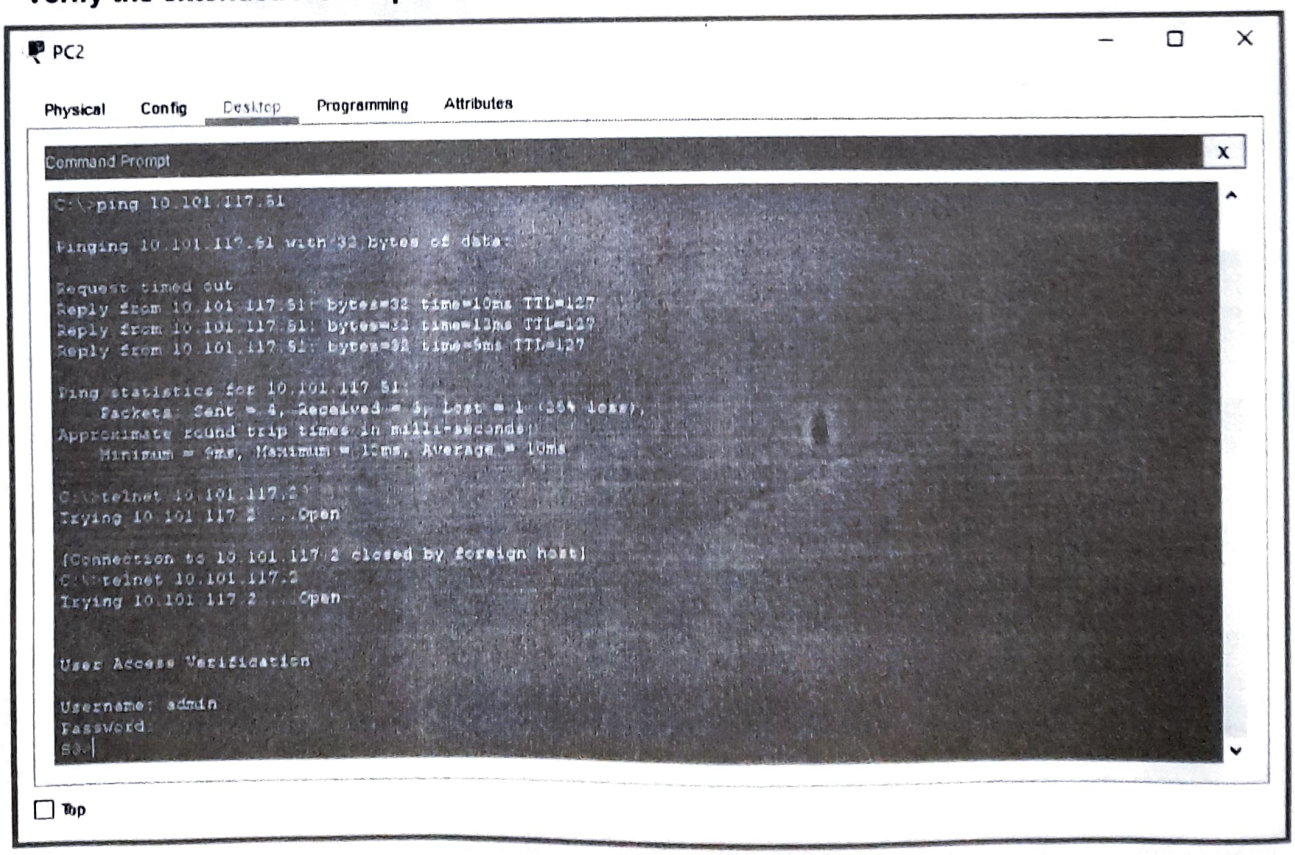
(Devices on LAN 10.101.117.32 are allowed to remotely access devices in LAN 10.101.117.0 using the TELNET protocol. Besides ICMP, all traffic from other networks is denied.)

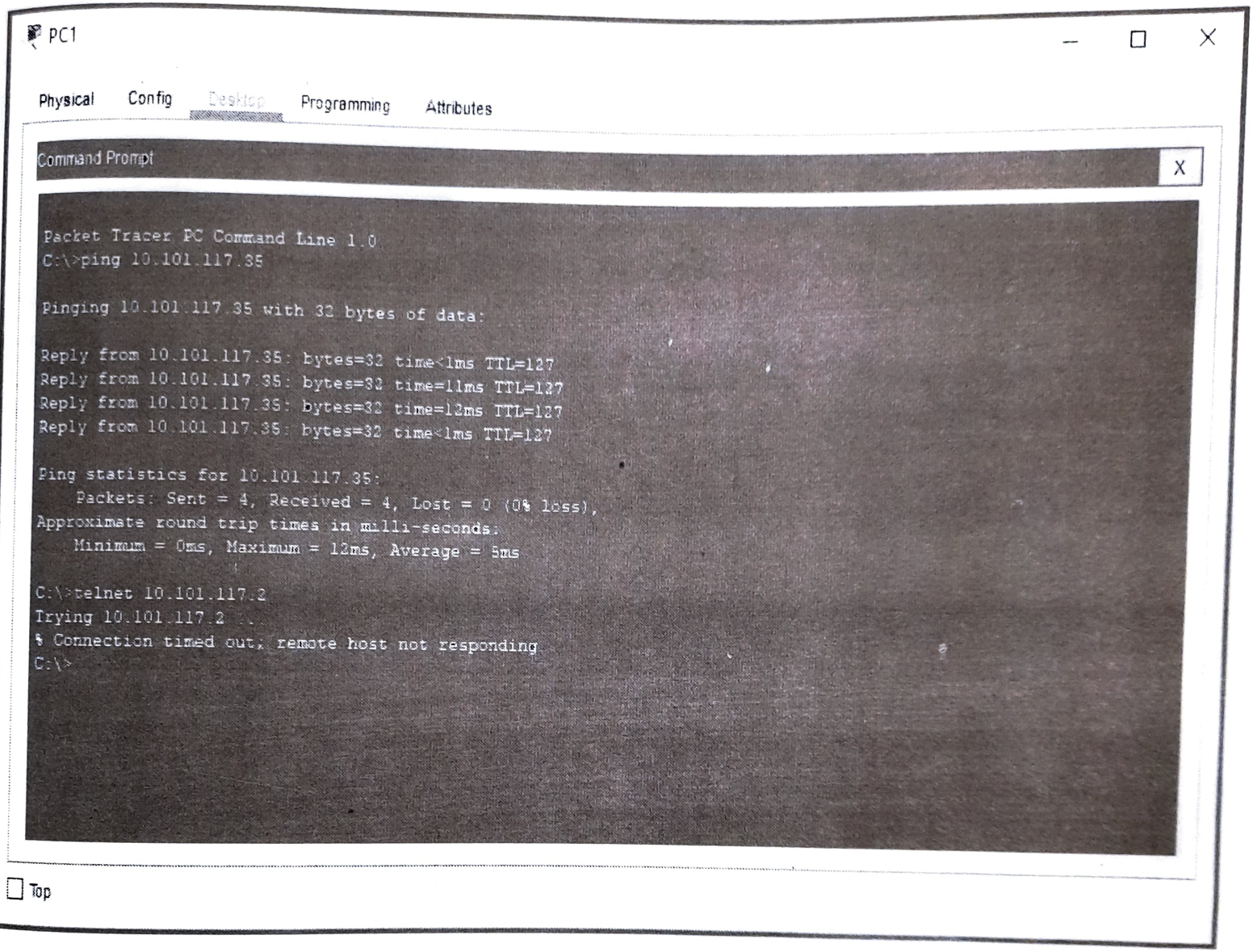
```
R1>en
R1#conf t
R1(config)#access-list ?
      <1-99> IP standard access list
      <100-199> IP extended access list
R1(config)#access-list 199 ?
      deny Specify packets to reject
      permit Specify packets to forward
      remark Access list entry comment
R1(config)#access-list 199 permit ?
      ahp Authentication Header Protocol
      eigrp Cisco's EIGRP routing protocol
      esp Encapsulation Security Payload
      gre Cisco's GRE tunneling
      icmp Internet Control Message Protocol
      ip Any Internet Protocol
      ospf OSPF routing protocol
      tcp Transmission Control Protocol
      udp User Datagram Protocol
R1(config)#access-list 199 permit tcp ?
      A.B.C.D Source address
      anyAny source host
      host A single source host
      R3(config)#access-list 199 permit tcp 10.101.117.32 ?
      A.B.C.D Source wildcard bits
```

```
R1(config)#access-list 199 permit tcp 10.101.117.32 0.0.0.15 ?
  A.B.C.D Destination address
  anyAny destination host
  eq Match only packets on a given port number
  gt Match only packets with a greater port number
  host A single destination host
  lt Match only packets with a lower port number
  neq Match only packets not on a given port number
  range Match only packets in the range of port numbers
R1(config)#access-list 199 permit tcp 10.101.117.32 0.0.0.15 10.101.117.0 ?
  A.B.C.D Destination wildcard bits
R1(config)#access-list 199 permit tcp 10.101.117.32 0.0.0.15 10.101.117.0 0.0.0.31 ?
  dscp Match packets with given dscp value
  eq Match only packets on a given port number
  establishedestablished
  gt Match only packets with a greater port number
  lt Match only packets with a lower port number
  neq Match only packets not on a given port number
  precedence Match packets with given precedence value
  range Match only packets in the range of port numbers
  <cr>
R1(config)#access-list 199 permit tcp 10.101.117.32 0.0.0.15 10.101.117.0 0.0.0.31 eq ?
  <0-65535> Port number
  ftp File Transfer Protocol (21)
  pop3 Post Office Protocol v3 (110)
  smtp Simple Mail Transport Protocol (25)
  telnetTelnet (23)
  www World Wide Web (HTTP, 80)
R1(config)#access-list 199 permit tcp 10.101.117.32 0.0.0.15 10.101.117.0 0.0.0.31 eq telnet
R1(config)#access-list 199 ?
  deny Specify packets to reject
  permit Specify packets to forward
  remark Access list entry comment
R1(config)#access-list 199 permit ?
  ahp Authentication Header Protocol
  eigrp Cisco's EIGRP routing protocol
  esp Encapsulation Security Payload
```

```
      gre Cisco's GRE tunneling
      icmp Internet Control Message Protocol
      ip Any Internet Protocol
      ospf OSPF routing protocol
      tcp Transmission Control Protocol
      udp User Datagram Protocol
R1(config)#access-list 199 permit icmp ?
      A.B.C.D Source address
      anyAny source host
      host A single source host
R1(config)#access-list 199 permit icmp any ?
      A.B.C.D Destination address
      anyAny destination host
      host A single destination host
R1(config)#access-list 199 permit icmp any any
R1(config)#interface GigabitEthernet0/2
R1(config-if)#ip access-group 199 out
R1(config-if)# ^Z
R1#exit
```

☞ **Verify the extended ACL implementation**




PC1
Physical
Config
Desktop
Programming
Attributes
Command Prompt
X
Packet Tracer PC Command Line 1.0
C:\>ping 10.101.117.35
Pinging 10.101.117.35 with 32 bytes of data:
Reply from 10.101.117.35: bytes=32 time<1ms TTL=127
Reply from 10.101.117.35: bytes=32 time=11ms TTL=127
Reply from 10.101.117.35: bytes=32 time=12ms TTL=127
Reply from 10.101.117.35: bytes=32 time<1ms TTL=127
Ping statistics for 10.101.117.35:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 12ms, Average = 5ms
C:\>telnet 10.101.117.2
Trying 10.101.117.2 ...
% Connection timed out; remote host not responding
C:\>
Top