

INSTITUTE OF COMPUTER TECHNOLOGY
B-TECH COMPUTER SCIENCE ENGINEERING 2025-26
SUBJECT: COMPUTER NETWORKS

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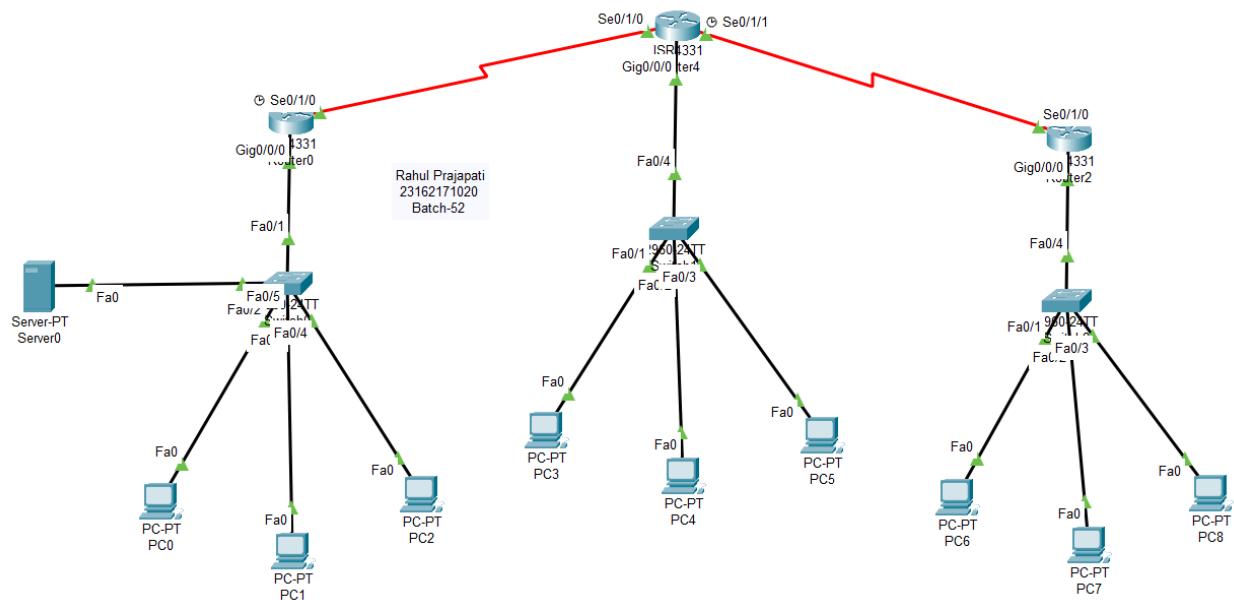
BRANCH: CYBER SECURITY

BATCH: 52

PRACTICAL_05

Aim: To configure and utilize Telnet (teletype network), SSH (Secure Socket Shell) and FTP (File Transfer Protocol) in a network.

Network Design:



IP Address Configuration of devices:

DEPARTMENT	DEVICE	IP ADDRESS	SUBNET MASK	DEFAULT GATEWAY
ROUTER_0	FTP_SERVER	192.20.10.2	255.255.255.0	192.20.10.1
	PC_0	192.20.10.11		
	PC_1	192.20.10.12		
	PC_2	192.20.10.13		
ROUTER_1	PC_3	192.20.20.11	255.255.255.0	192.20.20.1
	PC_4	192.20.20.12		
	PC_5	192.20.20.13		
	PC_6	192.20.30.11		
ROUTER_2	PC_7	192.20.30.12	255.255.255.0	192.20.30.1
	PC_8	192.20.30.13		

Routers configuration :

DEVICE	ROUTER_0	ROUTER_1	ROUTER_2
IP ADDRESS	192.20.10.0	192.20.20.0	192.20.30.0
SUBNET MASK	255.255.255.0	255.255.255.0	255.255.255.0
DEFAULT GATEWAY	192.20.10.1	192.20.20.1	192.20.30.1
RIP	10.0.0.0	10.0.0.0	10.0.0.0
	20.0.0.0	20.0.0.0	20.0.0.0
	192.20.10.0	192.20.20.0	192.20.30.0

Router_0_TELNET_Configurations:

```

Router0#conf ter
Enter configuration commands, one per line. End with CNTL/Z.
Router0(config)#enable secret tell123
Router0(config)#username usr1 password 0 psw1
Router0(config)#username usr2 password 0 psw2
Router0(config)#username usr3 password 0 psw3
Router0(config)#line vty 0 1
Router0(config-line)#password tell123
Router0(config-line)#password login
Router0(config-line)#login local
Router0(config-line)#show user
^
% Invalid input detected at '^' marker.

Router0(config-line)#exit
Router0(config)#show user
^
% Invalid input detected at '^' marker.

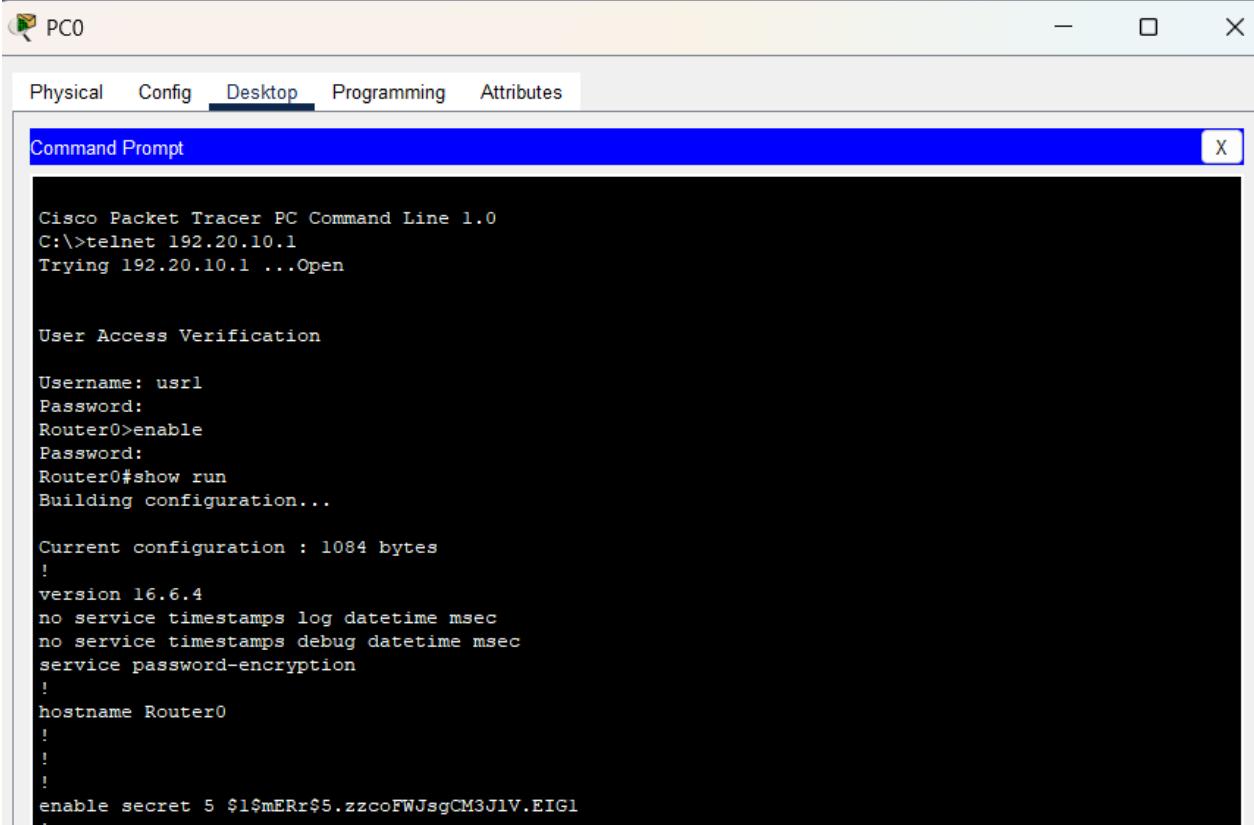
Router0(config)#servi
Router0(config)#service password-encryption
Router0(config)#do show run
enable secret 5 $1$meRr$5.zzcoFWJsgCM3J1V.EIG1
!
!
!
!
no ip cef
no ipv6 cef
!
!
!
username usr1 password 7 08315F5958
username usr2 password 7 08315F595B
username usr3 password 7 08315F595A

```

```
line vty 0 1
password 7 082D43490017
login local
line vty 2 4
```

TELNET_LOGINS:

Pc0:



PC0

Physical Config Desktop Programming Attributes

Command Prompt

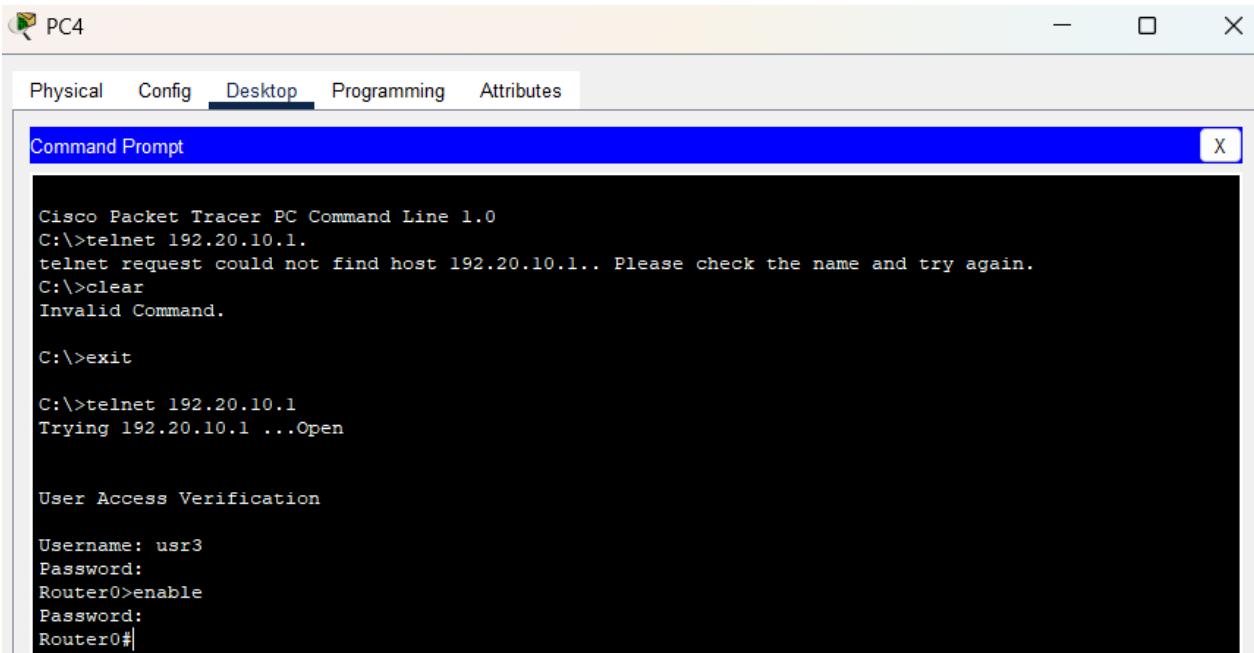
```
Cisco Packet Tracer PC Command Line 1.0
C:>telnet 192.20.10.1
Trying 192.20.10.1 ...Open

User Access Verification

Username: usrl
Password:
Router0>enable
Password:
Router0#show run
Building configuration...

Current configuration : 1084 bytes
!
version 16.6.4
no service timestamps log datetime msec
no service timestamps debug datetime msec
service password-encryption
!
hostname Router0
!
!
!
enable secret 5 $1$mERr$5.zzcoFWJsgCM3J1V.EIG1
!
```

Pc4:



PC4

Physical Config Desktop Programming Attributes

Command Prompt

```
Cisco Packet Tracer PC Command Line 1.0
C:>telnet 192.20.10.1.
telnet request could not find host 192.20.10.1.. Please check the name and try again.
C:>clear
Invalid Command.

C:>exit

C:>telnet 192.20.10.1
Trying 192.20.10.1 ...Open

User Access Verification

Username: usr3
Password:
Router0>enable
Password:
Router0#|
```

Pc8:

The screenshot shows a window titled "Command Prompt" with the following text:

```
Cisco Packet Tracer PC Command Line 1.0
C:\>telnet 192.20.10.1
Trying 192.20.10.1 ...Open

[Connection to 192.20.10.1 closed by foreign host]
C:\>
```

Users logged_in:

```
Router0#show user
  Line      User      Host(s)          Idle      Location
* 4 vty 0    usrl    idle            00:00:00  192.20.10.11
  5 vty 1    usr3    idle            00:01:53  192.20.20.12

  Interface   User          Mode      Idle      Peer Address
Router0#
```

Router_1_SSH-Configurations:

```
Router>
Router>enable
Router#conf ter
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#hostname R1
R1(config)#enable secret ssh123
R1(config)#ip domain name sshR1
R1(config)#crypto key generate rsa
The name for the keys will be: R1.sshR1
Choose the size of the key modulus in the range of 360 to 4096 for your
General Purpose Keys. Choosing a key modulus greater than 512 may take
a few minutes.

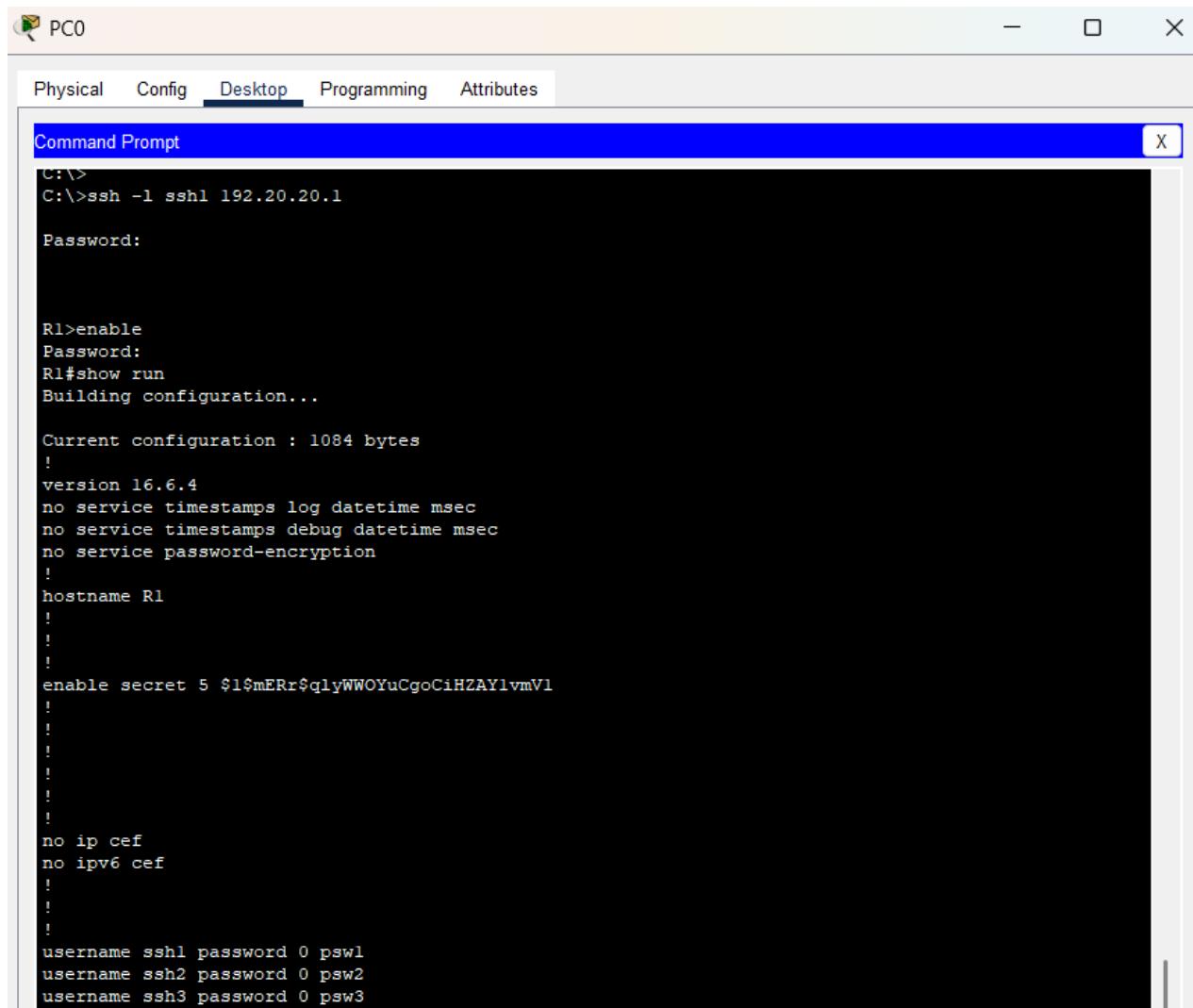
How many bits in the modulus [512]: 1024
% Generating 1024 bit RSA keys, keys will be non-exportable...[OK]

R1(config)#username ssh1 password psw1
*Mar 1 0:59:9.406: %SSH-5-ENABLED: SSH 1.99 has been enabled
R1(config)#username ssh2 password psw2
R1(config)#username ssh3 password psw3
R1(config)#ip ssh version 2
R1(config)#line vty 0 1
R1(config-line)#transport input ssh
R1(config-line)#login local
R1(config-line)#exit
R1(config)#do show run
enable secret 5 $1$ERr$qlYUcgoCiHZAYlvmV1
!
!
!
!
!
no ip cef
no ipv6 cef
!
!
!
!
!
!
username ssh1 password 0 psw1
username ssh2 password 0 psw2
username ssh3 password 0 psw3
!
!
!
!
!
!
ip ssh version 2
ip domain-name sshR1
```

```
line vty 0 1
login local
transport input ssh
line vty 2 4
login
```

Login via SSH:

Pc0:



The screenshot shows a Windows Command Prompt window titled "Command Prompt". The window has tabs at the top: Physical, Config, Desktop (which is selected), Programming, and Attributes. The main area of the window displays the following text:

```
C:\>
C:\>ssh -l ssh1 192.20.20.1
Password:

R1>enable
Password:
R1#show run
Building configuration...

Current configuration : 1084 bytes
!
version 16.6.4
no service timestamps log datetime msec
no service timestamps debug datetime msec
no service password-encryption
!
hostname R1
!
!
enable secret 5 $1$mERr$qlYWWOYuCgoCiHZAY1vmV1
!
!
!
!
!
no ip cef
no ipv6 cef
!
!
!
username ssh1 password 0 psw1
username ssh2 password 0 psw2
username ssh3 password 0 psw3
```

Pc5:

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ssh -l ssh2 192.20.20.1

Password:

R1>enable
Password:
R1#show run
Building configuration...

Current configuration : 1084 bytes
!
version 16.6.4
no service timestamps log datetime msec
no service timestamps debug datetime msec
no service password-encryption
!
hostname R1
!
!
!
enable secret 5 $1$mERr$g1yWWOYuCgoCiHZAYlvmV1
!
```

Pc6:

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ssh -l ssh3 192.20.20.1

Password:
Password:
Password:
[Connection to 192.20.20.1 closed by foreign host]
C:\>
```

Users Logged_in:

```
R1#show user
  Line      User      Host(s)          Idle      Location
  4 vty 0    ssh1     idle            00:04:11
* 5 vty 1    ssh2     idle            00:00:00

  Interface   User           Mode      Idle      Peer Address
R1#
```

FTP_SERVER-Configurations:

The screenshot shows the configuration interface for a server named 'Server0'. The 'Services' tab is selected. On the left, a sidebar lists various services: HTTP, DHCP, DHCPv6, TFTP, DNS, SYSLOG, AAA, NTP, EMAIL, **FTP**, IoT, VM Management, and Radius EAP. The 'FTP' service is currently selected. The main panel displays the 'FTP' configuration. It shows the 'Service' status as 'On' (radio button selected) and 'Off' (radio button unselected). Under 'User Setup', there is a table with two entries:

	Username	Password	Permission
1	cisco	cisco	RWDNL
2	rahulbhai	12345	RWDNL

Below the table are buttons for 'Add', 'Save', and 'Remove'.

The screenshot shows the configuration interface for a client named 'PC1'. The 'Desktop' tab is selected. A 'Text Editor' window is open, containing the following text:

```
Hello this is practical number 6 for FTP.
```

The screenshot shows the configuration interface for 'Server0'. The 'Desktop' tab is selected. A 'Command Prompt' window is open, displaying the output of the 'dir' command:

```
Cisco Packet Tracer SERVER Command Line 1.0
C:\>dir

Volume in drive C has no label.
Volume Serial Number is 5E12-4AF3

Directory of C:\

1/1/1970   5:30 PM           41      practical_cs20.txt
1/1/1970   5:30 PM           26      sampleFile.txt
                           67 bytes          2 File(s)

C:\>
```

PC1

Physical Config Desktop Programming Attributes

Command Prompt

```
C:\>ftp 192.20.10.2
Trying to connect...192.20.10.2
Connected to 192.20.10.2
220- Welcome to PT Ftp server
Username:rahulbhai
331- Username ok, need password
Password:
230- Logged in
(passive mode On)
ftp>put practical16_20.txt

Writing file practical16_20.txt to 192.20.10.2:
File transfer in progress...

[Transfer complete - 41 bytes]

41 bytes copied in 0.059 secs (694 bytes/sec)
ftp>dir

Listing /ftp directory from 192.20.10.2:
0 : ass842-k8.bin
1 : ass923-k8.bin
2 : c1841-adviservicesk9-mz.124-15.T1.bin
3 : c1841-ipbase-mz.123-14.T7.bin
4 : c1841-ipbasek9-mz.124-12.bin
5 : c1900-universalk9-mz.SPA.155-3.M4a.bin
6 : c2600-adviservicesk9-mz.124-15.T1.bin
7 : c2600-i-mz.122-28.bin
8 : c2600-ipbasek9-mz.124-8.bin
9 : c2800nm-adviservicesk9-mz.124-15.T1.bin
10 : c2800nm-adviservicesk9-mz.151-4.M4.bin
11 : c2800nm-ipbase-mz.123-14.T7.bin
12 : c2800nm-ipbasek9-mz.124-8.bin
13 : c2900-universalk9-mz.SPA.155-3.M4a.bin
14 : c2950-16q4l2-mz.121-22.EA4.bin
15 : c2950-16q4l2-mz.121-22.EA8.bin
16 : c2960-lanbase-mz.122-25.FX.bin
17 : c2960-lanbase-mz.122-25.SE1.bin
18 : c2960-lanbasek9-mz.150-2.SE4.bin
19 : c3560-adviservicesk9-mz.122-37.SE1.bin
20 : c3560-adviservicesk9-mz.122-46.SE.bin
21 : c800-universalk9-mz.SPA.152-4.M4.bin
22 : c800-universalk9-mz.SPA.154-3.Mea.bin
23 : cat3k_caa-universalk9.16.03.02.SPA.bin
24 : cgr1000-universalk9-mz.SPA.154-2.CG
25 : cgr1000-universalk9-mz.SPA.156-3.CG
26 : demo.txt
27 : ir800-universalk9-bundle.SPA.156-3.M.bin
28 : ir800-universalk9-mz.SPA.155-3.M
29 : ir800-universalk9-mz.SPA.156-3.M
30 : ir800_yocto-1.7.2.tar
31 : ir800_yocto-1.7.2_python-2.7.3.tar
32 : practical16_20.txt
41
```

FTP_on PCs:

Pc2:

PC2

Physical Config Desktop Programming Attributes

Command Prompt

```
C:\>
C:\>dir

Volume in drive C has no label.
Volume Serial Number is 5E12-4AF3
Directory of C:\

1/1/1970      5:30 PM           26      sampleFile.txt
                           26 bytes
                           1 File(s)

C:\>ftp 192.20.10.2
Trying to connect...192.20.10.2
Connected to 192.20.10.2
220- Welcome to PT Ftp server
Username:rahulbhai
331- Username ok, need password
Password:
230- Logged in
(passive mode On)
ftp>
```

```
ftp>get practical6_20.txt
Reading file practical6_20.txt from 192.20.10.2:
File transfer in progress...
[Transfer complete - 41 bytes]
41 bytes copied in 0 secs
ftp>quit
221- Service closing control connection.
C:>dir
Volume in drive C has no label.
Volume Serial Number is 5E12-4AF3
Directory of C:\

1/1/1970  5:30 PM           41      practical6_20.txt
1/1/1970  5:30 PM           26      sampleFile.txt
                           67 bytes          2 File(s)
C:>
```

Pc6:

```
C:>dir
Volume in drive C has no label.
Volume Serial Number is 5E12-4AF3
Directory of C:\

1/1/1970  5:30 PM           16      demo.txt
1/1/1970  5:30 PM           26      sampleFile.txt
                           42 bytes          2 File(s)
C:>ftp 192.20.10.2
Trying to connect...192.20.10.2
Connected to 192.20.10.2
220- Welcome to PT Ftp server
Username:rahulbhai
331- Username ok, need password
Password:
230- Logged in
(passive mode On)
ftp>get practical6_20.txt
Reading file practical6_20.txt from 192.20.10.2:
File transfer in progress...
[Transfer complete - 41 bytes]
41 bytes copied in 0.003 secs (13666 bytes/sec)
ftp>quit
221- Service closing control connection.
C:>dir
Volume in drive C has no label.
Volume Serial Number is 5E12-4AF3
Directory of C:\

1/1/1970  5:30 PM           16      demo.txt
1/1/1970  5:30 PM           41      practical6_20.txt
1/1/1970  5:30 PM           26      sampleFile.txt
                           83 bytes          3 File(s)
C:>
```

Conclusion: The configuration successfully enabled different departments to **remotely access** the central network device using both **Telnet** and the more **secure SSH**. Limits were set so only two users could connect simultaneously for management. Furthermore, an **FTP server** was set up, allowing users to **transfer files** easily between the different departments. This established basic secure and functional network access and file sharing.