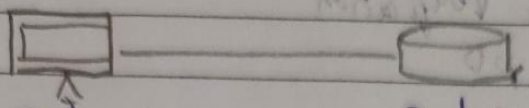
Lab-9

1) Demonstrate TELNET by accessing router in server room from a PC

=) Topology:



Procedure: Select a PC and router and set IP as
PC → 10.0.0.1 Router → 10.0.0.2

2) Set the IP address for router in CLI

3) Enter the following commands

→ enable
→ config t
→ hostname R1
→ enable secret p1
→ interface fa 0/0
→ ip address 10.0.0.2 255.0.0.0
→ no shut
→ line vty 0 5
→ login
→ password p0
→ exit

Output:

PC> telnet 10.0.0.1
Trying 10.0.0.1 ... Open
User Access Verification
Password: b0
R1> enable
Password: b1
R1# Show IP route
Gateway of last

C 10.0.0.0/8 is directly connected, Fa 0/0

10/10

2) Write a program for error decoding code using CRC-CCITT (16 bits)

```
#include<stdio.h>
#include<string.h>
#define CRC_POLY 0x8021
unsigned short calculate_CRC(const char *data, int length)
{
    unsigned short crc = 0xFFFF;
    for(i=0; i<length; i++)
    {
        crc^ = (unsigned short) data[i]<<8;
        for(int j=0; j<8; j++)
        {
            if(crc & 0x8000)
                crc = (crc<<1) ^ CRC_POLY;
```

```
        else
            crc <<= 1;
        }
    }
    return crc;
}

int main()
{
    char data[100];
    printf("Enter data");
    scanf("%s", &data);
    int datalength = strlen(data);
    unsigned
    unsigned short checksum = calculateCRC(data, datal
    printf("Calculated CRC: 0x%04X\n", checksum);
    unsigned short receivedChecksum;
    printf("Enter received CRC:");
    scanf("%hx", &receivedChecksum);
    if (receivedChecksum == checksum){
        printf("Data is error-free\n"); else
        printf("Data Contain error\n");
    }
}
```

10/2

Output: Enter frame bits: 1011

Message after appending 16 zeros: 1011 0000 0000 0000 0000

1/9/23 Generator: 10001000000100001

Quotient: 1011

Transmitted frame: 1011 1011 0000 0110 1011

Enter frame bits: 1011 1011 0001 0110 1011

Last remainder: 0000 0000 0000 0000

Data is error-free

2) Write a program for congestion control using Leaky bucket

```
#include<stdio.h>
int main()
{
int incoming, outgoing, buck_size, n, store=0;
printf("Enter bucket size, outgoing rate & no of inputs");
scanf("%d %d %d", &buck_size, &outgoing, &n);
while(n!=0)
{
printf("Enter incoming packet size %d\n", incoming);
if(incoming <= (buck_size - store))
{
store += incoming;
printf("bucket buffer size %d out of %d", store, buck_size);
}
else
{
printf("dropped %d no of packets\n", incoming - (buck_size - store));
printf("bucket buffer size %d out of %d\n", store, buck_size);
store = buck_size
}
store = store - outgoing
printf("After outgoing %d packet left out of %d in buffer\n", store, buck_size);
n--;
}
```

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DATE / /

Output: Enter bucket size, outgoing rate & no of i/p
20 10 2
Enter Incoming packet size: 30
Incoming packet size: 30
Dropped 10 no of packets
bucket buffer size 0 out of 20
After outgoing 10 packets left 20 in buffer.

Enter Incoming packet size: 10
Incoming packet size 10
bucket buffer size 10 out of 20
After outgoing 10 packets left 20 in buffer.

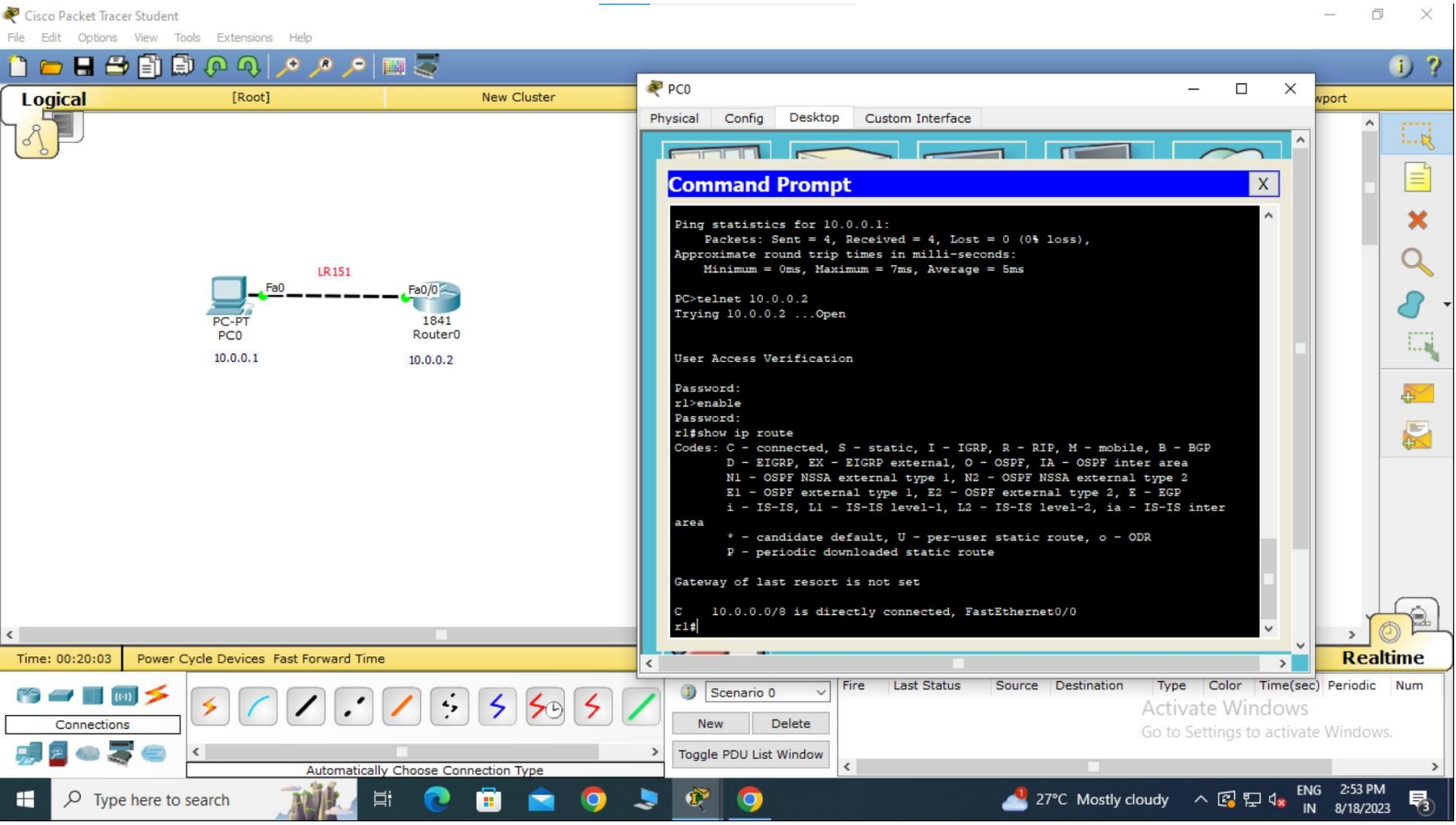
Space shortage

10/10

PKt - 200 byte
Pkt - 100 by

N
31/8/23

Output:2 : Enter bucket size, outgoing & no of i/p.


Cisco Packet Tracer Student
File Edit Options View Tools Extensions Help
Logical
[Root]
New Cluster
LR151
Fa0
Fa0/0
PC-PT
PC0
10.0.0.1
1841
Router0
10.0.0.2
PC0
Physical
Config
Desktop
Custom Interface
Command Prompt
Ping statistics for 10.0.0.1:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 7ms, Average = 5ms
PC>telnet 10.0.0.2
Trying 10.0.0.2 ...Open
User Access Verification
Password:
r1>enable
Password:
r1#show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter
area
* - candidate default, U - per-user static route, o - ODR
P - periodic downloaded static route
Gateway of last resort is not set
C 10.0.0.0/8 is directly connected, FastEthernet0/0
r1#
Time: 00:20:03
Power Cycle Devices Fast Forward Time
Realtime
Connections
Automatically Choose Connection Type
Scenario 0
New
Delete
Toggle PDU List Window
Fire
Last Status
Source
Destination
Type
Color
Time(sec)
Periodic
Num
Activate Windows
Go to Settings to activate Windows.
Type here to search
27°C Mostly cloudy
ENG
IN
2:53 PM
8/18/2023