Part B-1a

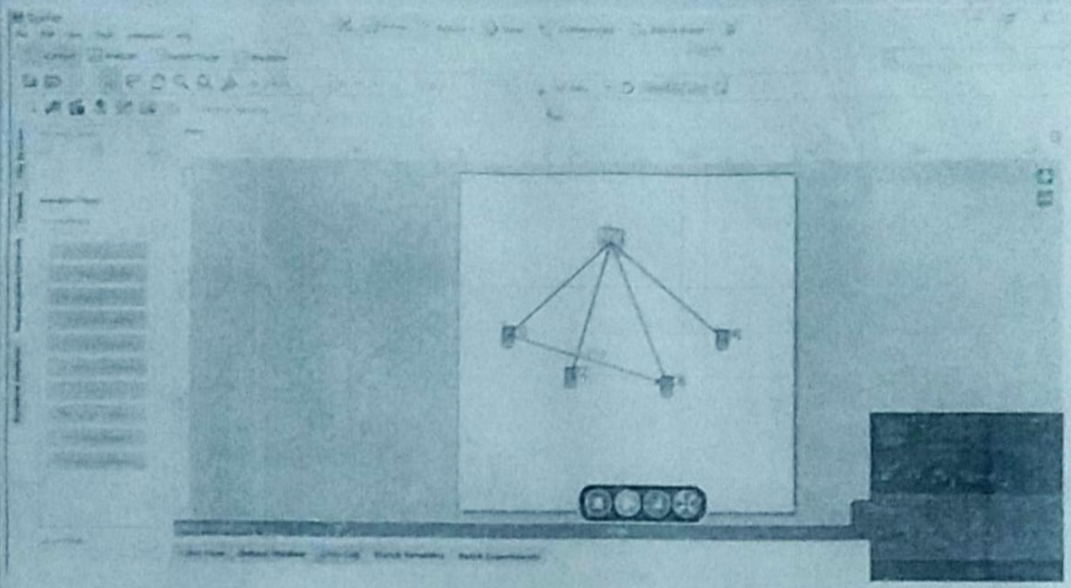

Fig 1

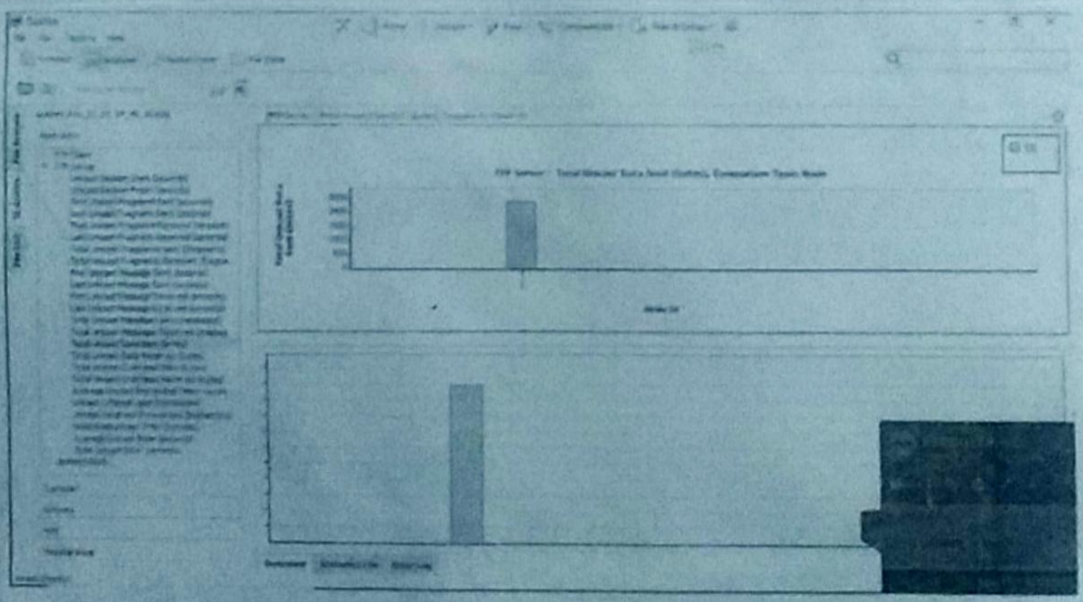

Fig 2

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Part-B

1) Setup an IEEE 802.3 network with
a) Hub b) Switch c) Hierarchy of switch. Apply the FTP, Telnet applications between nodes. Vary the number of nodes. Vary the bandwidth, queue size and observe the packet drop probability.

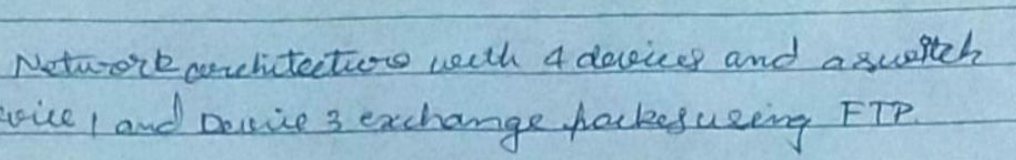

Fig 1: Network architecture with 4 devices and a switch device 1 and Device 3 exchange packets using FTP.

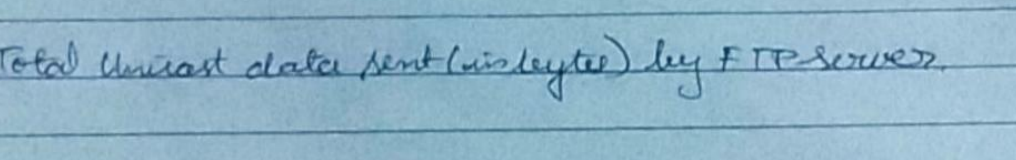

Fig 2: Total Unicast data sent (in bytes) by FTP Servers.

Teacher's Signature _____

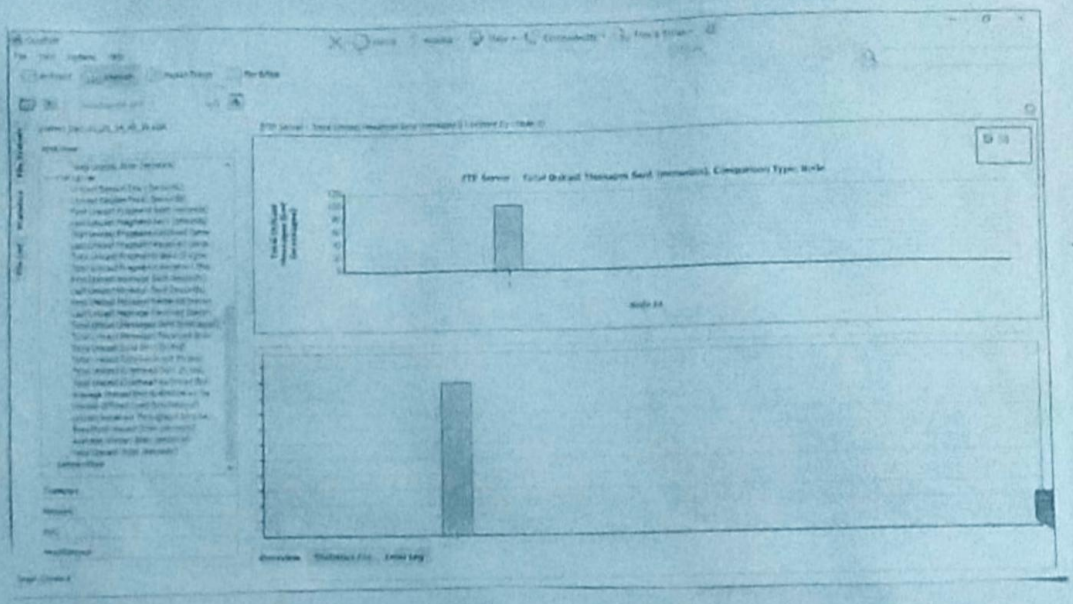

Fig 3

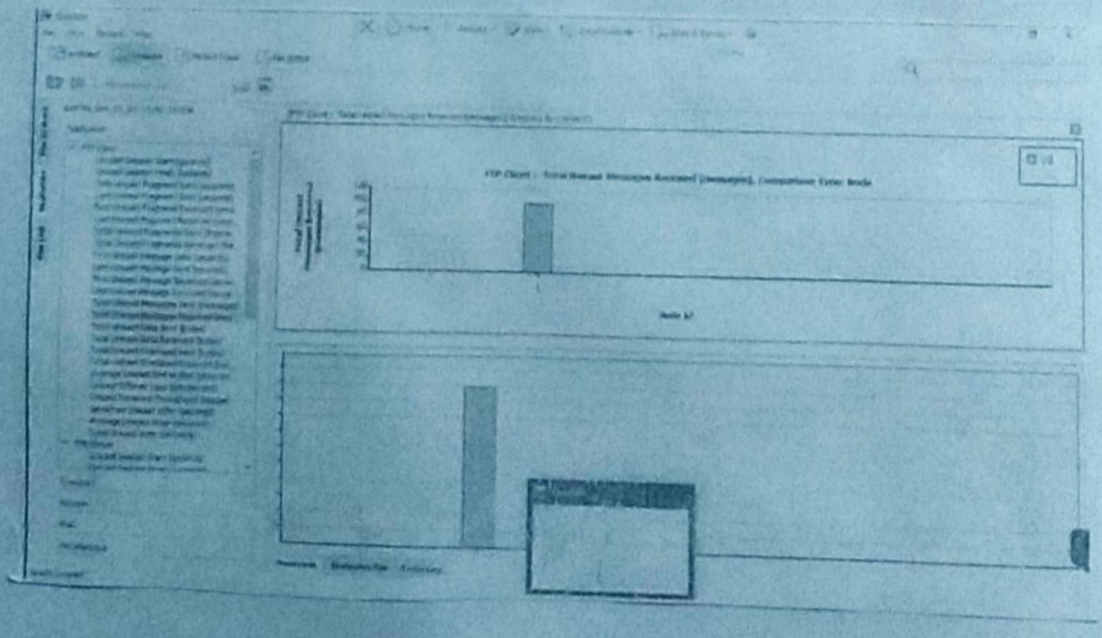

Fig 4

Fig3: Total Unicast Messages sent by FTP Server

Fig4: Total Unicast messages received by TCP client

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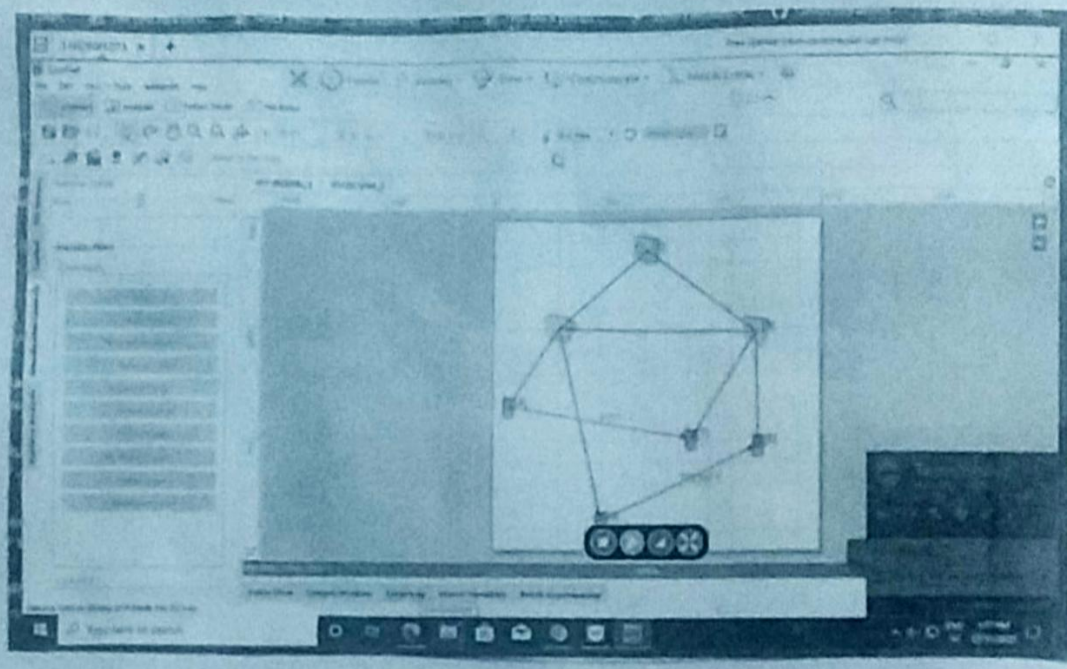
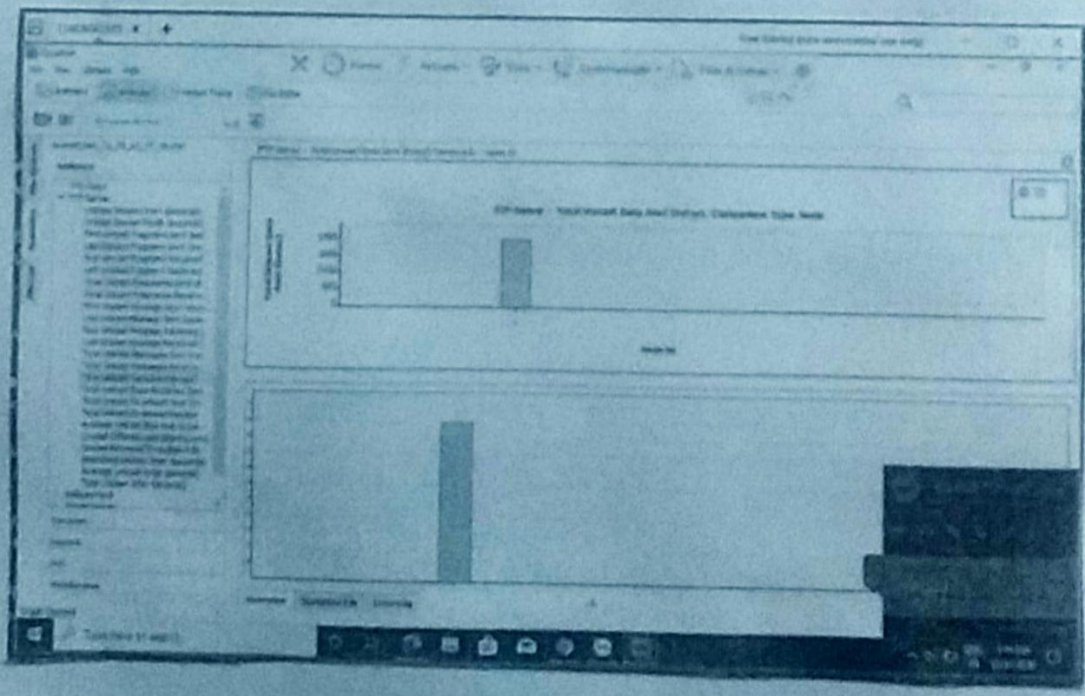
Part B - 1b





Date

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9)

Fig1: ~~Network hierarchy with~~

Fig1: Network architecture with two hierarchy of switch and clients. There is FTP communication between client 1 and 4 and TELNET communication between client 5 and 6.

Fig 2: Total unicast data (in bytes) sent by FTP server

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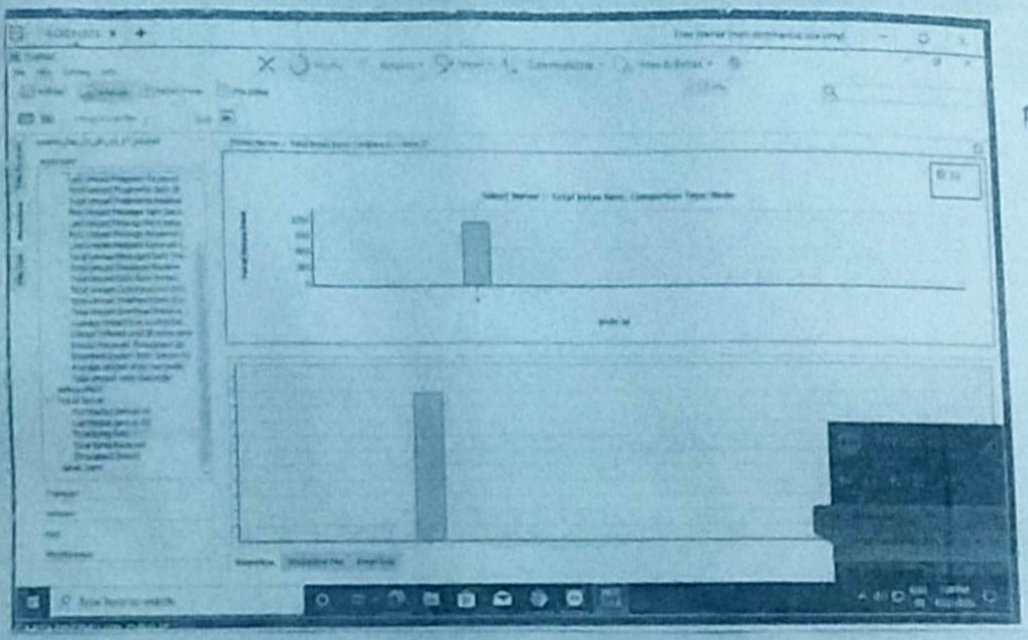

Fig 93

Date _____

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Fig3: Total bytes sent by Telnet Server.

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Part B - 2

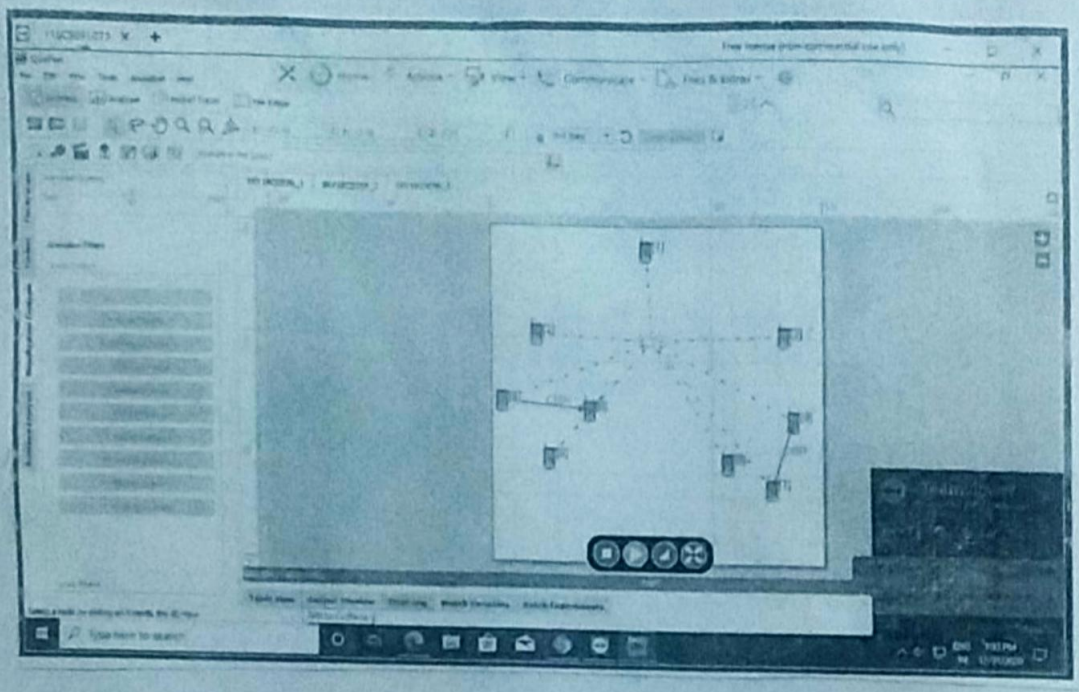

Fig1

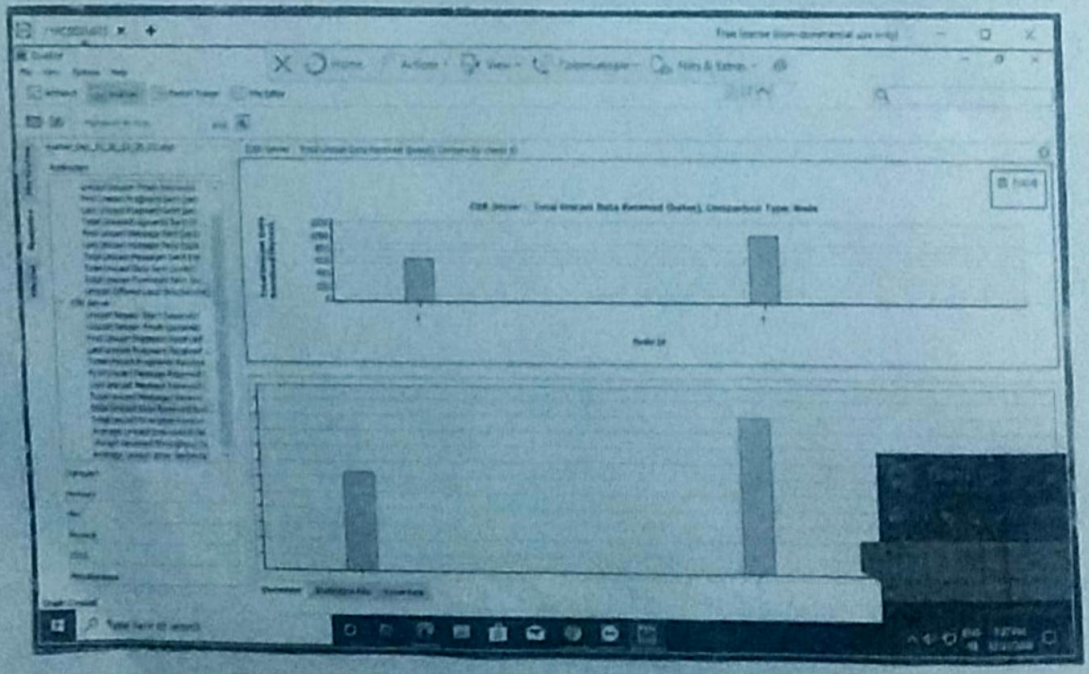

Fig2

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2) Setup a wireless sensor networks with atleast two device coordinators and nodes. Provide Constant Bit Rate (CBR), Variable Bit Rate (VBR) application between several nodes. Increase the number of coordinators and nodes in the same area and observe the performance at physical and MAC layers.

Fig1 : network architecture of wireless LAN. Here device 1 is the coordinator, devices 2 and 3 are PAN coordinator

Fig2 : Total Unicast data received (Bytes) by CBR server.

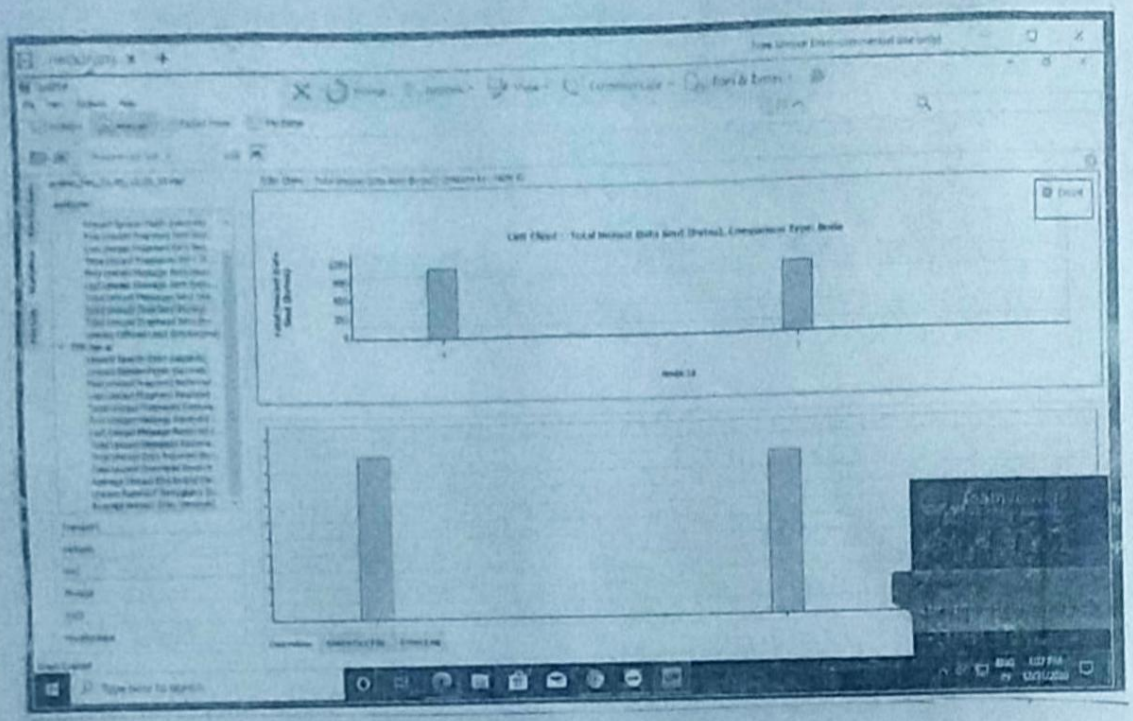

Fig 3:

Expt. No. _____ Date _____

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Fig 3: Total Unicast data sent (bytes) by CBR client

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Part B -3

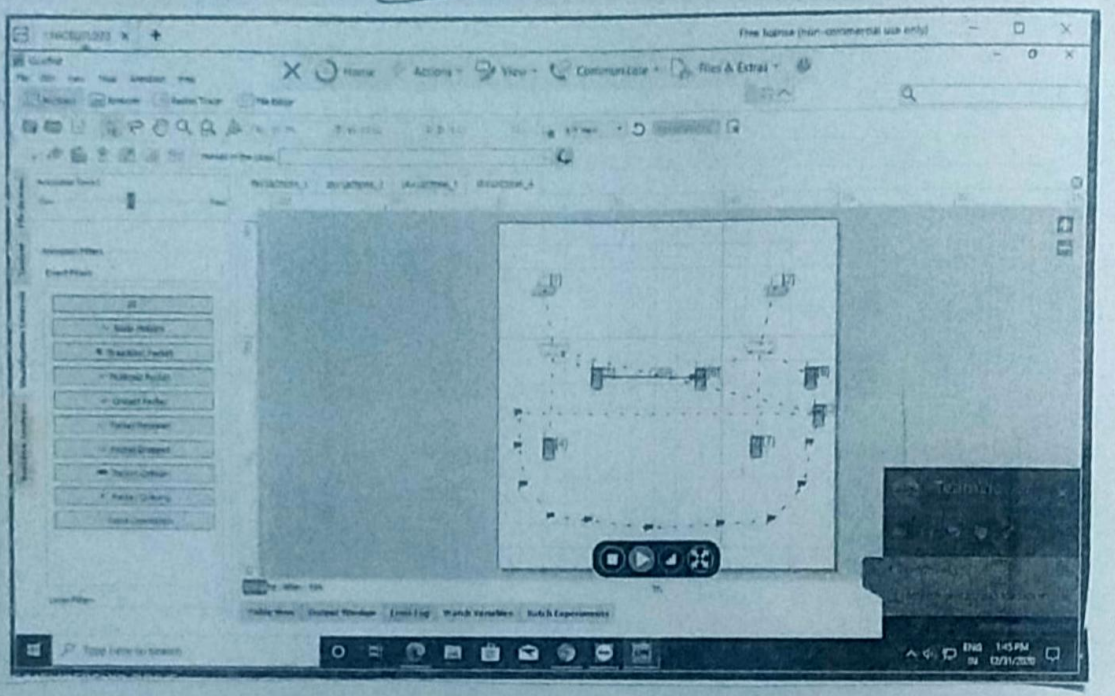

Fig 1

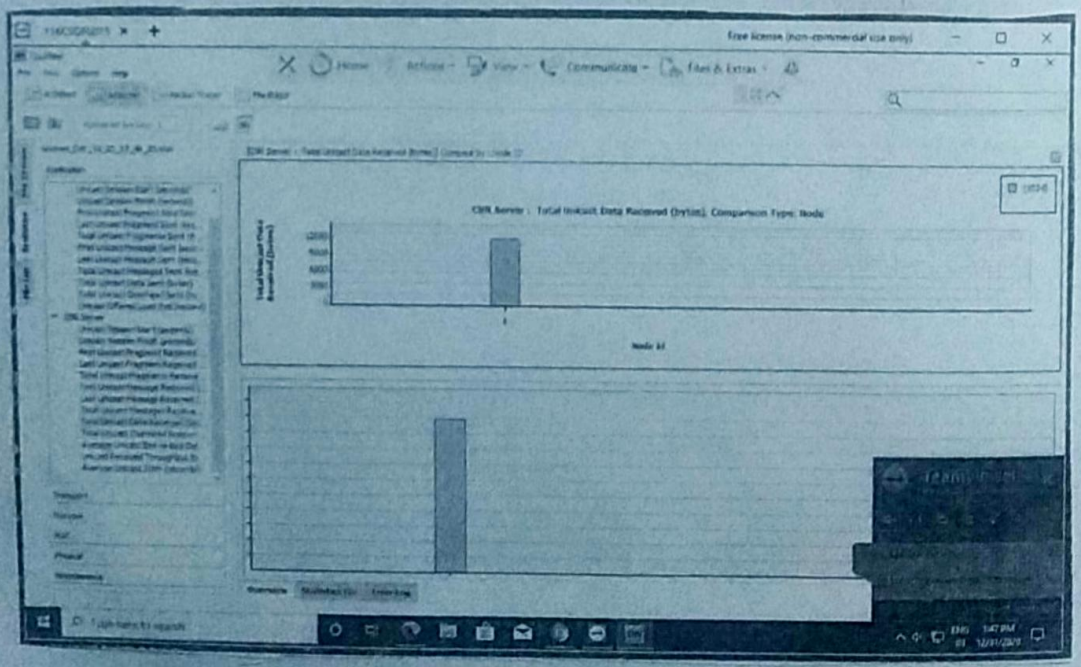

Fig 2

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3) Setup an IEEE 802.11 network with at least two access points. Apply the CBR, VBR applications between devices belonging to same access points and different access points. Provide roaming of any device. Vary the numbers of access points and devices. Find out the delay in MAC layer, packet drop probability

Fig1: Network Architecture of IEEE 802.11 wireless LAN. It has two access points

Fig2: Total unicast data received in Application layer CBR server.

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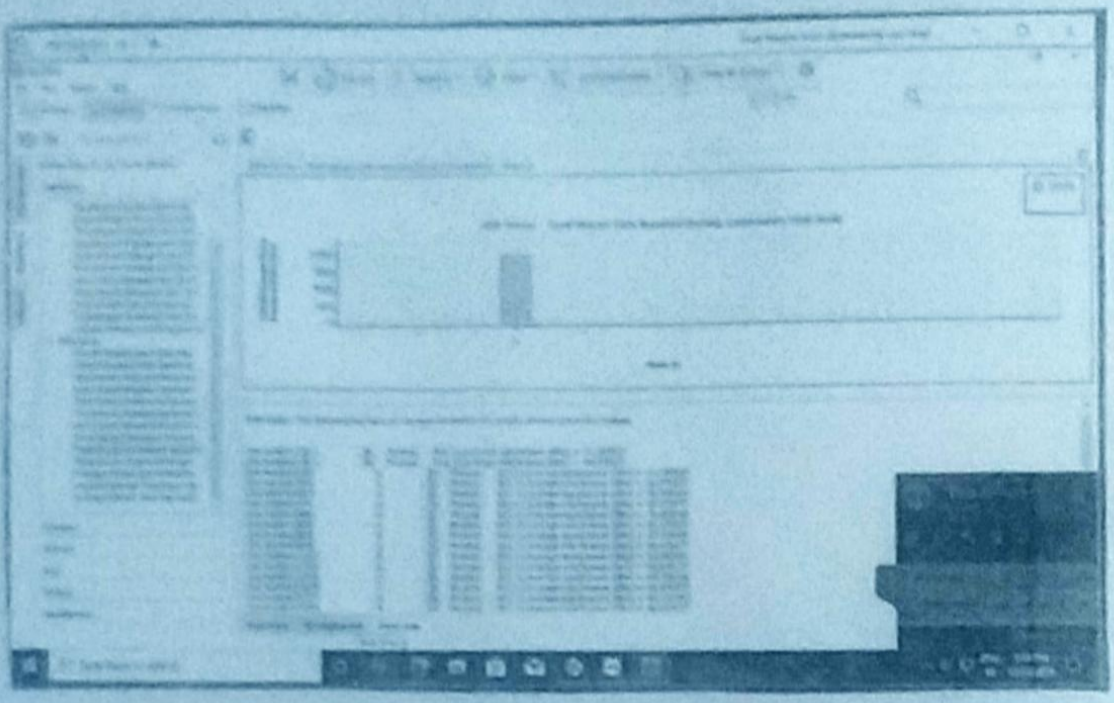

Fig 3:

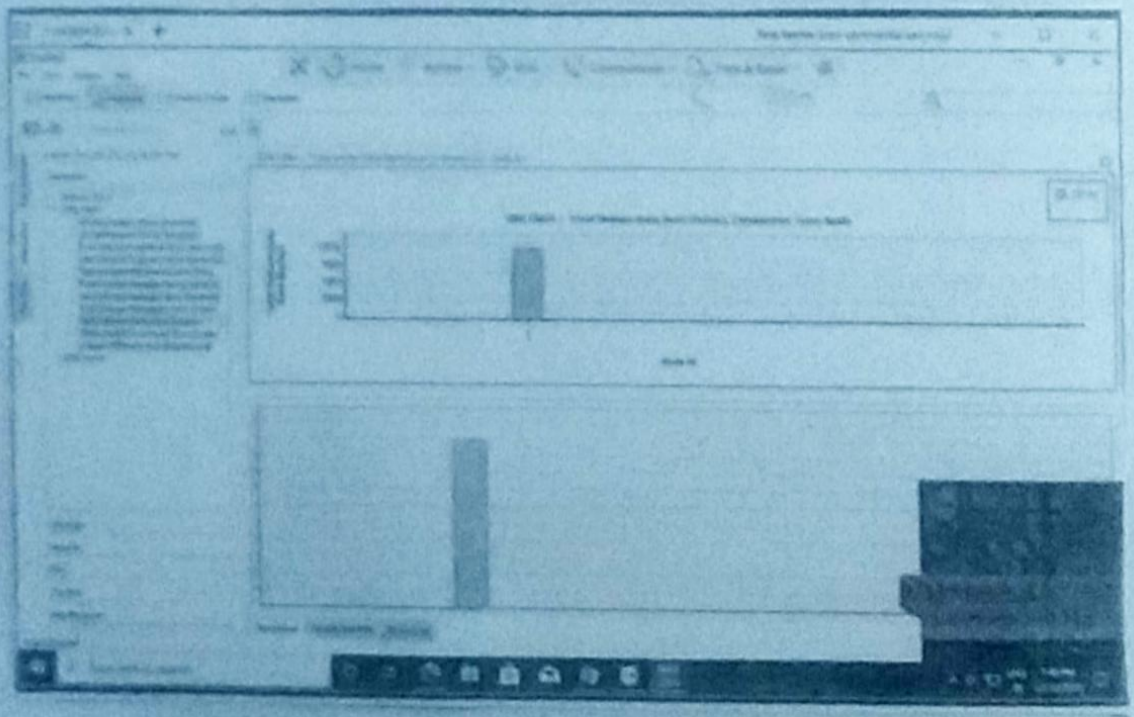

Fig 4:

Fig3: Total Unicast Data Received (bytes) by CBR server

Fig4: Total Unicast Data sent (bytes) by CBR client

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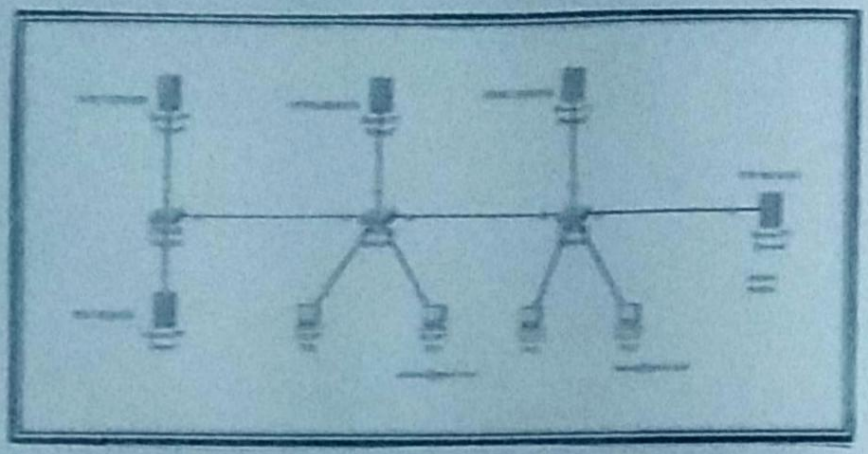
Topology A:



[illegible]

DHCP: [illegible]
Default Gateway

DNS: Domain name
IP address

Email: Domain, username, password
Incoming and outgoing mail servers

FTP: [illegible]
[illegible]

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4) Case Study on configuring routers using CISCO packet tracer

Inter VLAN communication

VLAN is a subnetwork which can group together collections of devices on separate physical local area network (LAN's). A LAN is a group of computers and devices and share a communication line or wireless link to a server within the same geographical area

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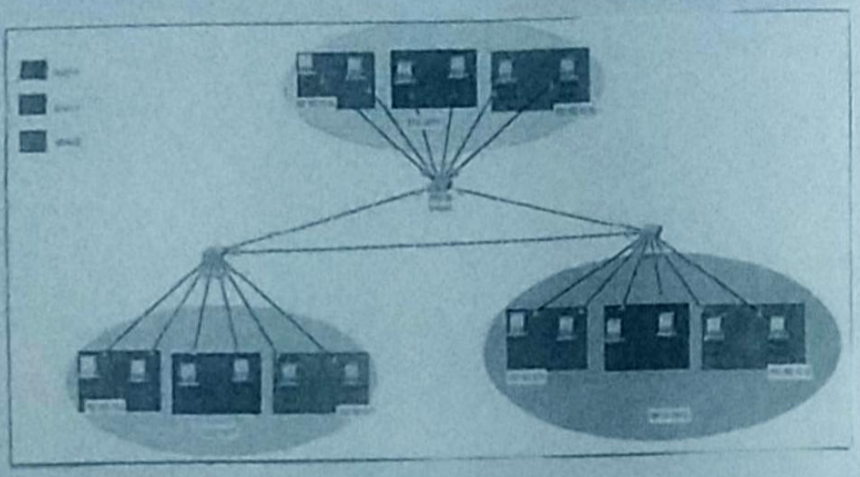
Topology B



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commands used:

switch > enable
switch # configure terminal
Enter configuration commands, one per line. End with CNTL/Z

switch (config) # vlan 10
switch (config-vlan) # name V10
switch (config-vlan) # exit
switch (config) # vlan 11
switch (config-vlan) # name V11
switch (config) # vlan 12
switch (config-vlan) # name V12
switch (config) # int fa 0/1
switch (config-if) # sw mo a
switch (config-if) # sw a vlan 10
switch (config) # int fa 0/2
switch (config-if) # sw a vlan 11
switch (config-if) # int fa 0/3
switch (config-if) # sw a vlan 12
~~switch (config-if) # int fa 0/4~~
~~switch (config-if) # int f sw mo~~
switch (config) # int fa 0/4
switch (config-if) # sw mo
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet 0/4, changed state to down
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet 0/4, changed to state up
switch (config-if) # sw negotiate

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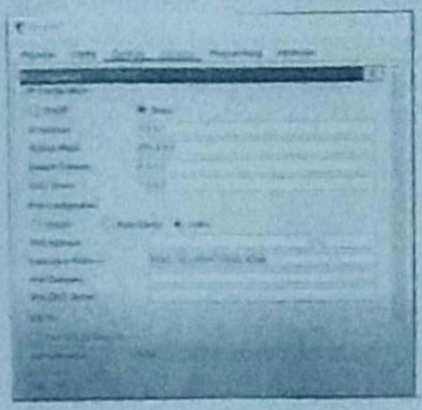
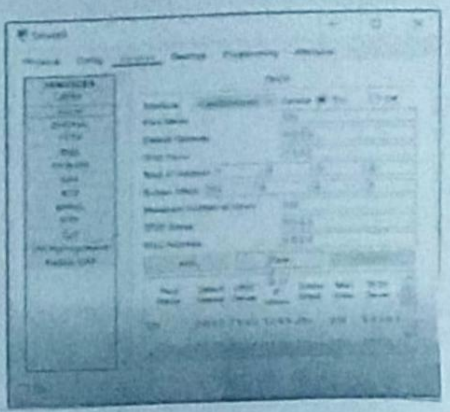
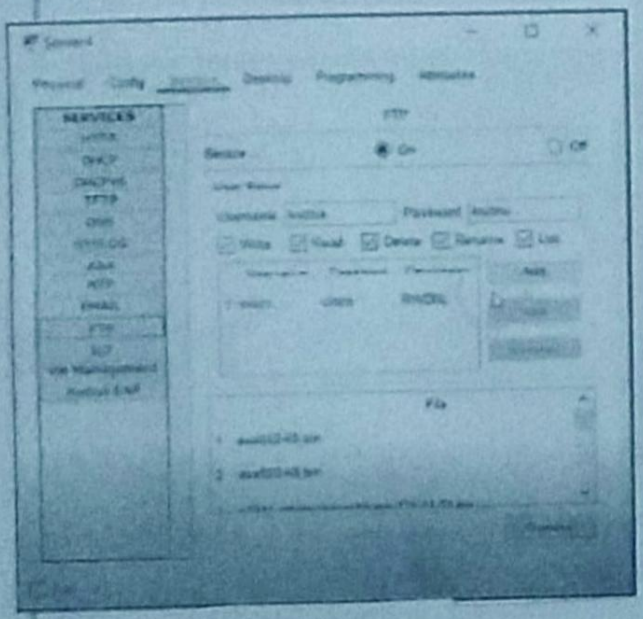
Screenshots of Simulation

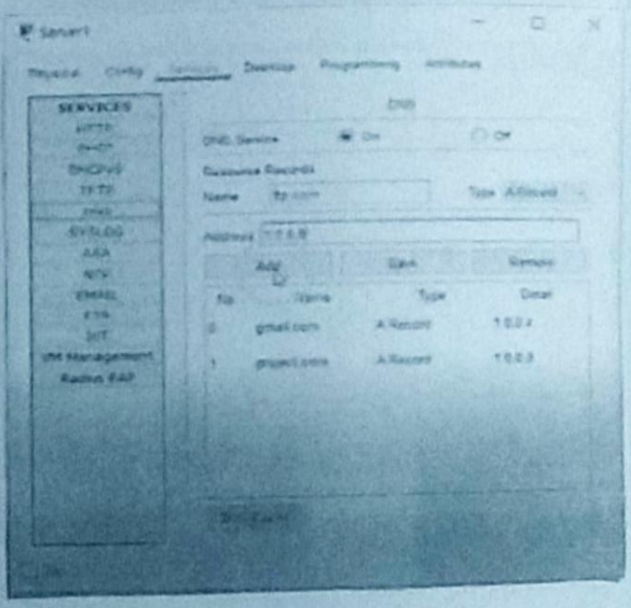
DHCP





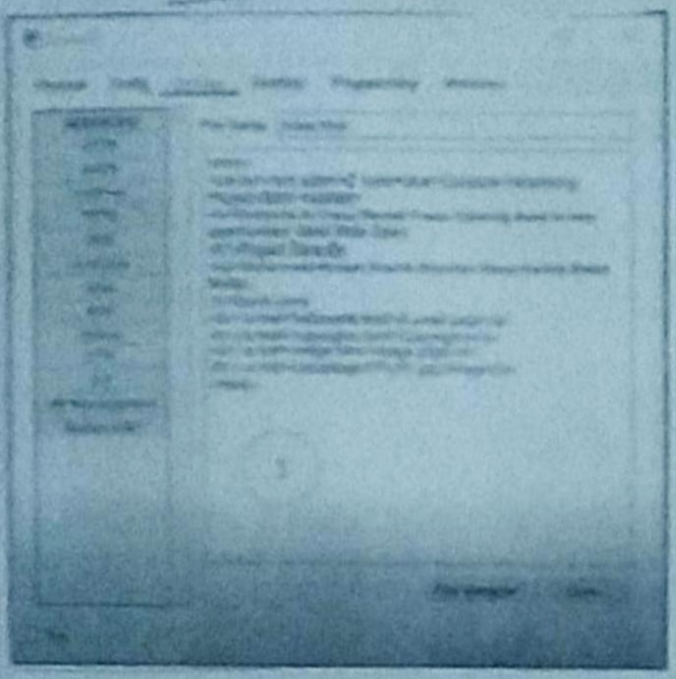


DNS

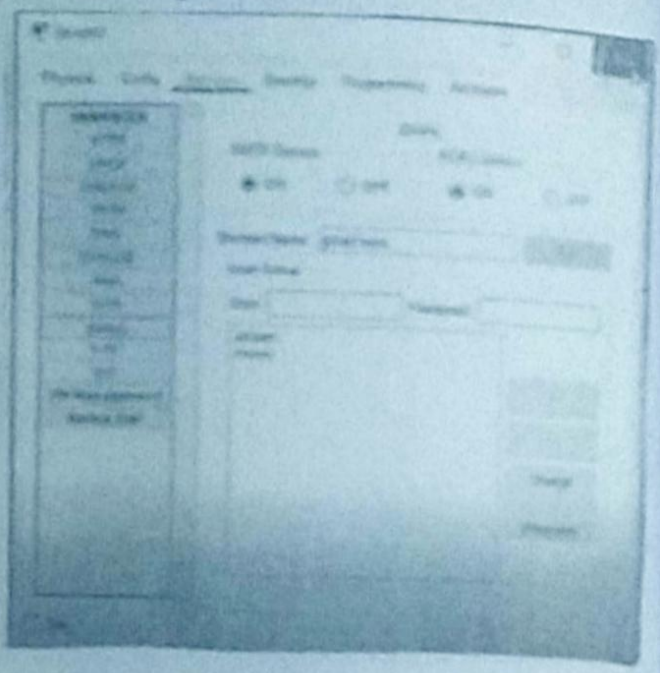


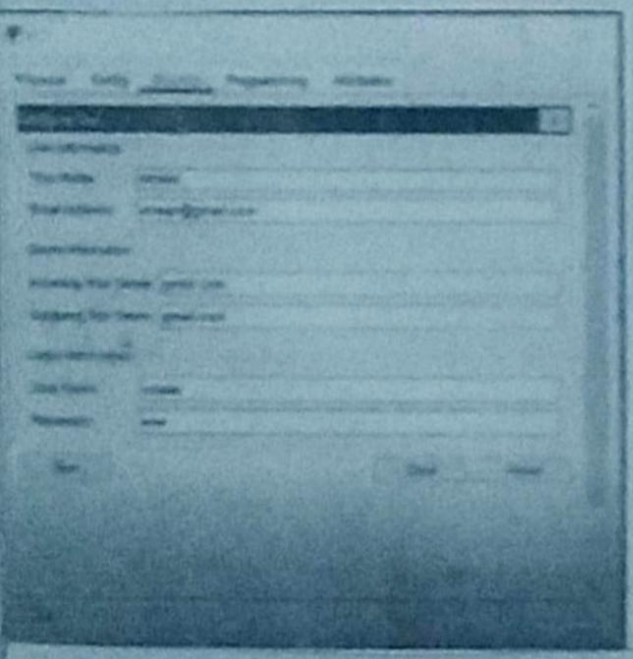
FTP

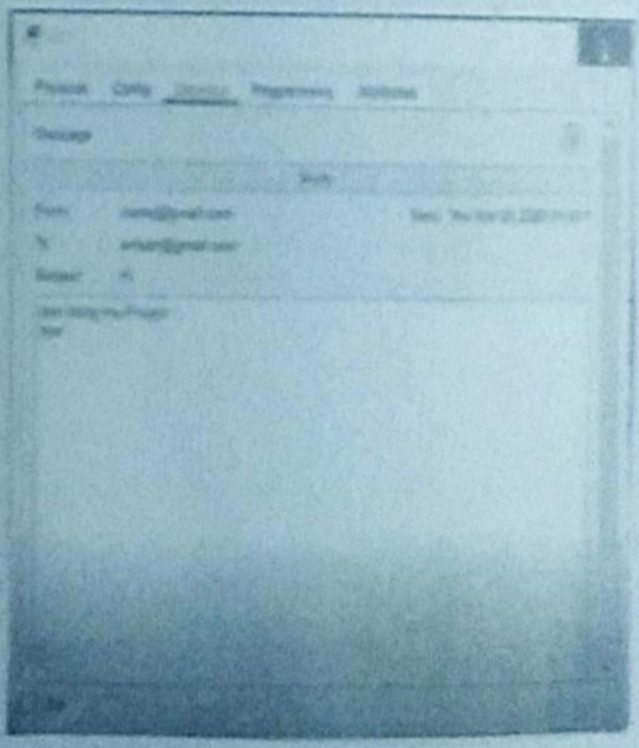
HTTP

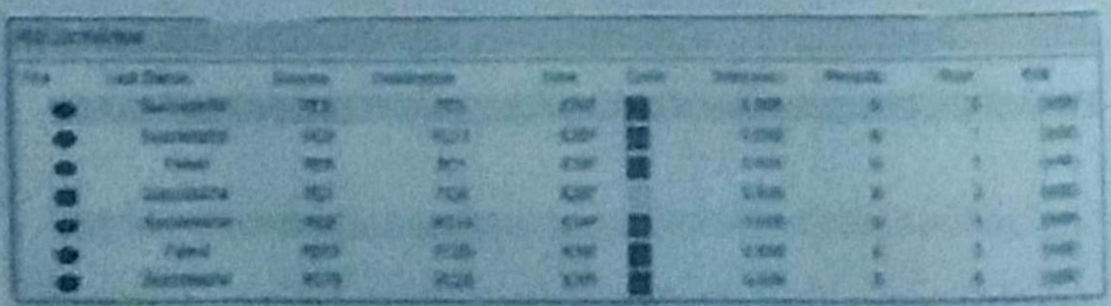


EMAIL









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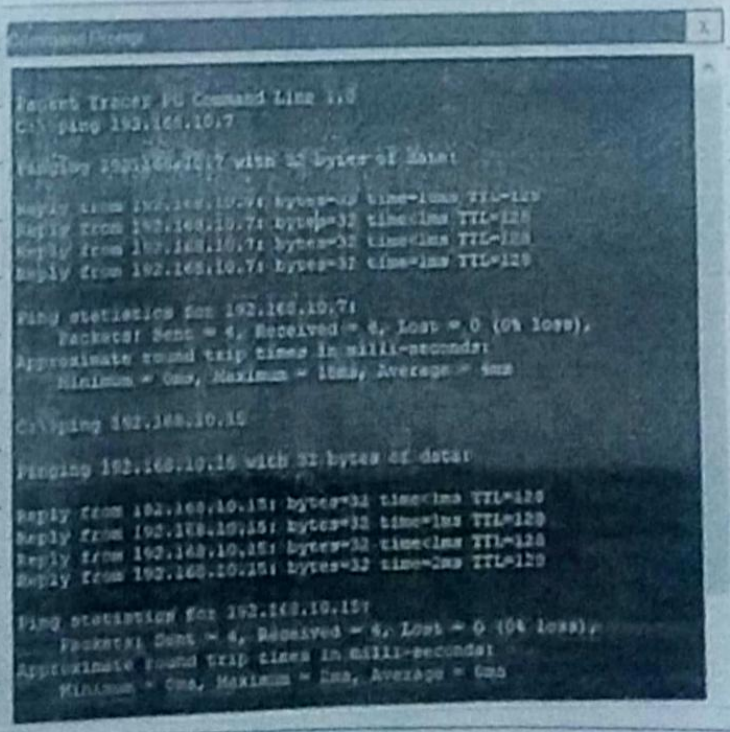
output

```
VLAN Name                              Status    Ports
---- --------------------------------- --------- -------------------------------
1    default                           active    Fa0/9, Fa0/10, Fa0/11, Fa0/12
                                                 Fa0/13, Fa0/14, Fa0/15, Fa0/16
                                                 Fa0/17, Fa0/18, Fa0/19, Fa0/20
                                                 Fa0/21, Fa0/22, Fa0/23, Fa0/24
10   V10                               active    Fa0/1, Fa0/6
11   V11                               active    Fa0/2, Fa0/5
12   V12                               active    Fa0/3, Fa0/4
1002 fddi-default                      active
1003 token-ring-default                active
1004 fddinet-default                   active
1005 trnet-default                     active

VLAN Type  SAID       MTU   Parent RingNo BridgeNo Stp  BrdgMode Trans1 Trans2
---- ----- ---------- ----- ------ ------ -------- ---- -------- ------ ------
1    enet  100001     1500  -      -      -        -    -        0      0
10   enet  100010     1500  -      -      -        -    -        0      0
11   enet  100011     1500  -      -      -        -    -        0      0
12   enet  100012     1500  -      -      -        -    -        0      0
1002 fddi  101002     1500  -      -      -        -    -        0      0

Switch#
```



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