PART - A

Experiment 1:

Implement three nodes point – to – point network with duplex links between them.Set the queue size, vary the bandwidth and find the number of packets dropped.

Step1: Open text editor, type the below program and save with extention .tcl (**prog1.tcl**)

```
set ns [new Simulator]
set nf [open prog1.nam w]
$ns namtrace-all $nf
set nd [open prog1.tr w]
$ns trace-all $nd

proc finish { } {
global ns nf nd
$ns flush-trace
close $nf
close $nd
exec nam prog1.nam &
exit 0
}

set n0 [$ns node]
set n1 [$ns node]
set n2 [$ns node]

$ns duplex-link $n0 $n1 1Mb 10ms DropTail
$ns duplex-link $n1 $n2 512kb 10ms DropTail
$ns queue-limit $n1 $n2 10

set udp0 [new Agent/UDP]
$ns attach-agent $n0 $udp0
set cbr0 [new Application/Traffic/CBR]
$cbr0 set packetSize_ 500
$cbr0 set interval_ 0.005
$cbr0 attach-agent $udp0
set sink [new Agent/Null]
$ns attach-agent $n2 $sink
$ns connect $udp0 $sink

$ns at 0.2 "$cbr0 start"
```

```
$ns at 4.5 "$cbr0 stop"
$ns at 5.0 "finish"
$ns run
```

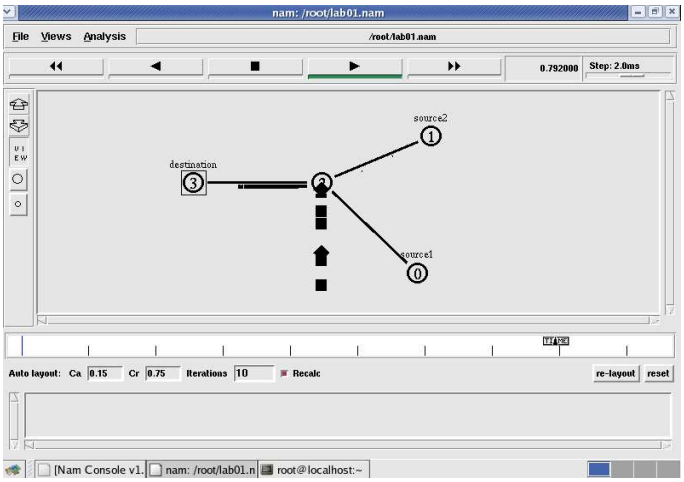
Step2: Open text editor, type the below program and save with extention .awk (**prog1.awk**)

```
BEGIN {
        dcount = 0;
        rcount = 0;
}
{
event = $1;
if(event == "d")
{
        dcount++;
}
if(event == "r")
{
        rcount++;
}
}
END {
printf("The no.of packets dropped  : %d\n ",dcount);
printf("The no.of packets recieved : %d\n ",rcount);
}
```

Step3: Run the simulation program

[root@localhost~]# ns prog1.tcl

(Here **"ns"** indicates network simulator. We get the topology shown in the snapshot.)



Step 4: Now press the play button in the simulation window and the simulation will begins.

Step 5: After simulation is completed run **awk file** to see the output ,

[root@localhost~]# awk –f prog1.awk prog1.tr

Number of packets droped = 16

Step 6: To see the trace file contents open the file as ,

[root@localhost~]# vi prog1.tr