**#create Simulator object**

set ns [new Simulator]

**#open trace file**

set nt [open prac2.tr w]

$ns trace-all $nt

**#open namtrace file**

set nf [open prac2.nam w]

$ns namtrace-all $nf

**#create nodes**

set n0 [$ns node] set n1 [$ns node] set n2 [$ns node] set n3 [$ns node] set n4 [$ns node] set n5 [$ns node]

**#label nodes**

$n0 label "ping0"

$n1 label "ping1"

$n2 label "ping2"

$n3 label "ping3"

$n4 label "ping4"

$n5 label "router"

**#create links, specify the type, nodes, bandwidth, delay and ARQ algorithm for it**

$ns duplex-link $n0 $n5 1Mb 10ms DropTail

$ns duplex-link $n1 $n5 1Mb 10ms DropTail

$ns duplex-link $n2 $n5 1Mb 10ms DropTail

$ns duplex-link $n3 $n5 1Mb 10ms DropTail

$ns duplex-link $n4 $n5 1Mb 10ms DropTail

**#set queue length**

$ns queue-limit $n0 $n5 5

$ns queue-limit $n1 $n5 5

$ns queue-limit $n2 $n5 2

$ns queue-limit $n3 $n5 5

$ns queue-limit $n4 $n5 2

$ns color 2 Red

$ns color 3 Blue

$ns color 4 Green

$ns color 5 Yellow

**#define ‘recv’ function for class Agent/Ping**

Agent/Ping instproc recv {from rtt} {

$self instvar node\_

puts "node [$node\_ id] received ping answer from $from with round-trip time $rtt ms"

}

**#create ping agent and attach them to node**

set p0 [new Agent/Ping]

$ns attach-agent $n0 $p0

$p0 set class\_ 1

set p1 [new Agent/Ping]

$ns attach-agent $n1 $p1

$p1 set class\_ 2

set p2 [new Agent/Ping]

$ns attach-agent $n2 $p2

$p2 set class\_ 3

set p3 [new Agent/Ping]

$ns attach-agent $n3 $p3

$p3 set class\_ 4

set p4 [new Agent/Ping]

$ns attach-agent $n4 $p4

$p4 set class\_ 5

**#connect 2 agents**

$ns connect $p2 $p4

$ns connect $p3 $p4

proc sendPingPacket { } {

global ns p2 p3

set intervalTime 0.001

set now [$ns now]

$ns at [expr $now + $intervalTime] "$p2 send"

$ns at [expr $now + $intervalTime] "$p3 send"

$ns at [expr $now + $intervalTime] "sendPingPacket"

}

proc finish { } {

global ns nt nf

$ns flush-trace

close $nt

close $nf

exec nam prac2.nam &

exit 0 }

$ns at 0.1 "sendPingPacket"

$ns at 2.0 "finish"

$ns run

**Awk file-**

BEGIN{

count=0; }

{ if($1=="d")

count++ }

END{ printf ("Number of packets dropped is = %d\n",count); }

**Output-**

$ns lab2.tcl

node 3 received ping answer from 4 with round-trip time 66.3 ms …….

**$awk -f numDrop.awk prac2.tr**

Number of packets dropped is = 41