**EXPERIMENT NO.5**

set ns [new Simulator]

#Define different colors for data flows (for NAM)

$ns color 1 Blue

$ns color 2 Red

#Open the Trace files

set file1 [open out.tr w]

$ns trace-all $file1

#Open the NAM trace file

set file2 [open out.nam w]

$ns namtrace-all $file2

#Define a 'finish' procedure

proc finish {} {

global ns file1 file2

$ns flush-trace

close $file1

close $file2

exec nam out.nam &

exit 0

}

#Create six 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]

set n6 [$ns node]

set n7 [$ns node]

set n8 [$ns node]

set n9 [$ns node]

$ns at 0.1 "$n2 label \"CBR\""

$ns at 1.0 "$n0 label \"FTP\""

#Create links between the nodes

$ns duplex-link $n0 $n1 2Mb 10ms DropTail

$ns duplex-link $n1 $n4 2Mb 10ms DropTail

$ns duplex-link $n2 $n3 2Mb 10ms DropTail

$ns duplex-link $n3 $n4 2Mb 10ms DropTail

$ns duplex-link $n4 $n5 0.3Mb 100ms DropTail

$ns duplex-link $n5 $n6 0.5Mb 40ms DropTail

$ns duplex-link $n5 $n7 0.5Mb 30ms DropTail

$ns duplex-link $n6 $n8 0.5Mb 30ms DropTail

$ns duplex-link $n7 $n9 0.5Mb 30ms DropTail

#Give node position (for NAM)

$ns duplex-link-op $n0 $n1 orient right

$ns duplex-link-op $n1 $n4 orient right-down

$ns duplex-link-op $n2 $n3 orient right

$ns duplex-link-op $n3 $n4 orient right-up

$ns duplex-link-op $n4 $n5 orient right

$ns duplex-link-op $n5 $n6 orient right-up

$ns duplex-link-op $n5 $n7 orient right-down

$ns duplex-link-op $n6 $n8 orient right

$ns duplex-link-op $n7 $n9 orient right

#Set Queue Size of link (n2-n3) to 10

$ns queue-limit $n4 $n5 10

#Setup a TCP connection

set tcp [new Agent/TCP]

$ns attach-agent $n0 $tcp

set sink [new Agent/TCPSink]

$ns attach-agent $n8 $sink

$ns connect $tcp $sink

$tcp set fid\_ 1

$tcp set window\_ 8000

$tcp set packetSize\_ 552

#Setup a FTP over TCP connection

set ftp [new Application/FTP]

$ftp attach-agent $tcp

$ftp set type\_ FTP

#Setup a UDP connection

set udp [new Agent/UDP]

$ns attach-agent $n2 $udp

set null [new Agent/Null]

$ns attach-agent $n9 $null

$ns connect $udp $null

$udp set fid\_ 2

#Setup a CBR over UDP connection

set cbr [new Application/Traffic/CBR]

$cbr attach-agent $udp

$cbr set type\_ CBR

$cbr set packet\_size\_ 1000

$cbr set rate\_ 0.01mb

$cbr set random\_ false

$ns at 0.1 "$cbr start"

$ns at 1.0 "$ftp start"

$ns at 100.0 "$ftp stop"

$ns at 100.5 "$cbr stop"

# Trace Congestion Window and RTT

set file [open cwnd\_rtt.tr w]

$tcp attach $file

$tcp trace cwnd\_

$tcp trace rtt\_

$ns at 101.0 "finish"

$ns run

OUTPUT:

