<u>Program :</u>

```
#New Simulator
set ns [new Simulator]

set nf [open lab.nam w]
set tf [open lab.tr w]

$ns trace-all $tf
$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]

#Initialise transport layer protocols
set tcp0 [new Agent/TCP]
set tcp1 [new Agent/TCP]
set sink3 [new Agent/TCPSink]
set sink5 [new Agent/TCPSink]

#Initialise application layer protocols
set ftp0 [new Application/FTP]
set telnet1 [new Application/Telnet]

#Establish links between the nodes
$ns duplex-link $n0 $n2 100Mb 300ms DropTail
$ns duplex-link $n1 $n2 100Mb 300ms DropTail
$ns duplex-link $n3 $n2 100Mb 300ms DropTail
$ns duplex-link $n4 $n2 100Mb 300ms DropTail
$ns duplex-link $n4 $n5 100Mb 300ms DropTail

#Attach transport layer protocols to network layer
$ns attach-agent $n0 $tcp0
$ns attach-agent $n1 $tcp1
$ns attach-agent $n3 $sink3
$ns attach-agent $n5 $sink5

#Attach application layer protocols to transport layer
$ftp0 attach-agent $tcp0
$telnet1 attach-agent $tcp1

#Connect the nodes
$ns connect $tcp0 $sink3
$ns connect $tcp1 $sink5
```

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$telnet1 set packetSize_ 1000Mb
$telnet1 set interval_ 0.0001

#Process
proc finish {} {
    global ns nf tf
    $ns flush-trace
    exec nam lab.nam &
    set fid [open lab.nam r]
    close $nf
    close $tf
    set ctr0 0
    set ctr1 0
    set thr0 0
    set thr1 0
    set fid [open lab.tr r]
    while {[gets $fid line] != -1} {
            if {[string match "*r*" $line]} {
                    set fields [regexp -all -inline {\S+} $line]
                    set c2 [lindex $fields 2]
                    set c3 [lindex $fields 3]
                    if { [expr $c2==2] && [expr $c3==3] } {
                            set ctr0 [expr $ctr0 + 1]
                    }
                    if { [expr $c2==4] && [expr $c3==5] } {
                            set ctr1 [expr $ctr1 + 1]
                    }
            }
    }
    set thr0 [expr $ctr0/5]
    set thr1 [expr $ctr1/5]
    puts "No of packets FTP: $ctr0"
    puts "Throughput FTP: $thr0"
    puts "No of packets TELNET: $ctr1"
    puts "Throughput TELNET: $thr1"
    exit 0
}

$ns at 0.01 "$ftp0 start"
$ns at 0.01 "$telnet1 start"
$ns at 5.0 "finish"
$ns run
```

Output :

```
No of packets FTP: 15
Throughput FTP: 3
No of packets TELNET: 7
Throughput TELNET: 1
```