

IIT Bhubaneswar
School of Electrical Sciences
Computer Networks Lab (0-0-3)
Spring 2023
Lab Schedule: Tue (10:00 AM-1:00PM)
Instructor: Debi Prosad Dogra (dpdogra@iitbbs.ac.in)
Assignment 4

(Submission Deadline: 21-03-2023, (Midnight))

Early submissions will get more weights.

Points: 200

FTP with Go-Back-N ARQ Protocol

Assignment # 4

Suppose there is a text file stored in computer A. The file needs to be transferred using TCP socket. Each TCP packet can be of size x bytes, where x is an input parameter. So, if you have a file of size M bytes, $\frac{M}{x}$ number of TCP packets need to be sent over the network so that the file is transferred to computer B. However, the channel is erroneous with $BEP = P$. Assume Go-back-N-ARQ protocol is used to control error. The delay (propagation) can be assumed to be negligible.

Write a complete client-server code that will implement the above.

Show the # of transmissions required when M & x are fixed, but P is varied.

Show the # of transmissions required when P is fixed, but M and x vary independently.

The diagram illustrates the Go-Back-N ARQ protocol. It shows a sender (S) and a receiver (R) with a window size $N=5$. Packets P_1, P_2, P_3, P_4, P_5 are sent. P_3 and P_4 are received successfully. P_5 is received but then a $NAK(P_3)$ is sent back to the sender, indicating that all packets from P_3 onwards must be retransmitted. The diagram shows P_3, P_4 and P_5 being retransmitted and received successfully.