**RAMANUJAN COLLEGECOLLEG**

**( UNIVERSITY OF DELHI )**

**COMPUTER NETWORKS PRACTICALS**

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Q1.

Simplex Stop – and – Wait protocol for noisy channel is data link layer protocol for data communications with error control and flow control mechanisms. It is popularly known as Stop – and –Wait Automatic Repeat Request (Stop – and –Wait ARQ) protocol. It adds error control facilities to Stop – and – Wait protocol.

This protocol takes into account the facts that the receiver has a finite processing speed and that frames may get corrupted while transmission. If data frames arrive at the receiver’s end at a rate which is greater than its rate of processing, frames can be dropped out. Also, frames may get corrupted or entirely lost when they are transmitted via network channels. So, the receiver sends an acknowledgment for each valid frame that it receives. The sender sends the next frame only when it has received a positive acknowledgment from the receiver that it is available for further data processing. Otherwise, it waits for a certain amount of time and then resends the frame.

Q2.

Selective Repeat Protocol (SRP) :

This protocol(SRP) is mostly identical to GBN protocol, except that buffers are used and the receiver, and the sender, each maintains a window of size. SRP works better when the link is very unreliable. Because in this case, retransmission tends to happen more frequently, selectively retransmitting frames is more efficient than retransmitting all of them. SRP also requires full-duplex link. backward acknowledgments are also in progress.

Sender’s Windows ( Ws) = Receiver’s Windows ( Wr).

Window size should be less than or equal to half the sequence number in SR protocol. This is to avoid packets being recognized incorrectly. If the size of the window is greater than half the sequence number space, then if an ACK is lost, the sender may send new packets that the receiver believes are retransmissions.

Sender can transmit new packets as long as their number is with W of all unACKed packets.

Sender retransmit un-ACKed packets after a timeout – Or upon a NAK if NAK is employed.

Receiver ACKs all correct packets.

Receiver stores correct packets until they can be delivered in order to the higher layer.

In Selective Repeat ARQ, the size of the sender and receiver window must be at most one-half of 2^m.

Efficiency of Selective Repeat Protocol (SRP) is same as GO-Back-N’s efficiency :

Efficiency = N/(1+2a)

Where a = Propagation delay / Transmission delay

Buffers = N + N

Sequence number = N(sender side) + N ( Receiver Side)