1. Find the latency of the ring where data rate of the link is 4 Mbps, number of stations are 20 separated by 100 meter and bit delay in each station is 2.5 bits. Recalculate the problem for 16 Mbps data rate of the link with 80 stations.
2. Consider a token ring with 100 stations. Each station introduce the 1 microsecond delay and overall propagation delay in the ring is 100 microsecond, size of the packet 200 bits and bandwidth 10 Mbps. Find the minimum size of the ring if $V = 2 \text{ X } 10^8$ m/s
3. Consider bandwidth as 50 Mbps and Max size if data can be delivered by the station is 12500 bytes. Find THT for the stations.
4. A very heavily loaded 1-km-long 10 Mbps token ring has a propagation speed of 200m/sec. fifty stations are uniformly spaced around the ring. Data frames are 256 bits, including 32 bits of overhead. Acknowledgement are piggybacked onto the data frames and are thus included as spare bits within the data frames and are effectively free, The token is 8 bits. Find the effective data rate of the network.
5. A Fiber optic token ring used as a MAN is 200 Km long and runs at 100 Mbps. After sending a frame, a station drains the frame from the ring before regenerating the token. The signal propagation speed in the fiber is 200000 km/second and the maximum frame size is 1k bytes. What is the maximum efficiency of the ring (ignoring all other sources of the overhead)?
6. Consider a 10 Mbps token ring LAN with a ring latency of 400 microsecond. A host that needs to transmit seizes the token. Then it send a frame of 100 bytes remove the frame after it has circulated all-round the ring and finally releases the token. This process is repeated for every frame. Assume that only a single host wishes to transmit then calculate the effective data rate of the ring.