Kip Taylor

HW4

Ccn

1. Quickest in order :
   a. Pure Aloha – fastest as seen on graph
   b. Slotted aloha – as seen on graph it is the second quickest
   c. 1- persistent csma seems and shows to be quicker so 3rd
   d. .5 persistent csma seems to be quicker than the three above it in time on the graph
   e. .1 persistent due to the less throughput at packet attempts, barely faster than the last 2
   f. .01 persistent due to the curve flatlining on the graph and showing its faster in the long run than nonpersistent.
   g. Non persistent seems to curve higher making it last in speed and making it last.
2. Since Bitmap is a collision free protocol it operates at the media access layer in the OSI model and it gives more throughput because in adaptive tree protocol under heavy load only a single group is allowed to you send the message like aloha whereas, **bitmap gives more throughput and suffers less delay as compared to the adaptive tree protocol its roughly correct to say the more fair is adaptive tree protocol because it categorizes the data into different sections and groups.**
3. We use Pure ALOHA, the available bandwidth would be 0.184 × 56 kbps = 10.3 kbps then each station requires roughly 10 bps, therefore N should = 10300/10 or 1030 stations.
4. In the worst case scenario would be if every stations wish to send something and s is the lowest-numbered station because the wait time would be, N bit contention period, + (N − 1) × d bit for transmission of frames and Thus the total would be N + (N − 1)d bit times.
5. (a) Not a single other communication is possible in this case due to all stations will see A's packet and it will interfere with receipt of any other packet by any other station.

   (b) B's packet will be seen by A, E and C, but not by D. Thus, A can send to D, or E can send to D, or C can send to D at the same time.

   (c) same as above B.