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* **You may collaborate with other students, but you must submit your own solutions.**

PROBLEM 1

Complete the following table using the token bucket algorithm. Bucket size = 1700 bytes. Token size = 1000 bytes. Assume initially the bucket has 1700 bytes of token.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Time | RX pkt | Bucket occupancy before  packet transmission | Size of transmitted packet | Bucket occupancy  after packet transmission |
| 1 | 1800 | 1700 + 1000 > 1700 -> 1700 | 1700 < 1800 -> 0  Drop pkt 1 | 1700 |
| 2 | 1200 | 1700 + 1000 > 1700 -> 1700 | 1700 > 1200 -> 1200  Send pkt 2 | 1700 – 1200 = 500 |
| 3 | 900 | 500+1000 -> 1500 | 1500 > 900 -> 900  Send pkt 3 | 1500 – 900 = 600 |

PROBLEM 2

Complete the following table using the leaky bucket algorithm. Bucket size = 1700 bytes. Leaky bucket rate = 1000 bytes / second. Assume initially the bucket is empty.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Time | RX pkt | Bucket occupancy before  packet transmission | Size of transmitted packet | Bucket occupancy  after packet transmission |
| 1 | 1800 | 0 + 1800 = 1800 > 1700, Drop pkt 1, send last 0  of pkt 1 | 0 | 0 |
| 2 | 1200 | 0 + 1200 = 1200 < 1700, send pkt2 up to 1000 | 1000 | 1200 – 1000 = 200 |
| 3 | 900 | 200 + 900 = 1100 < 1700, send pkt3 up to 1000 | 1000 | 1100 – 1000 = 100 |
| 4 | 0 | 100 + 0 = 100 < 1700, send pkt4, last 100 | 100 | 100 – 100 = 0 |