

(c) 120 users

 $p(n \text{ users transmitting})$

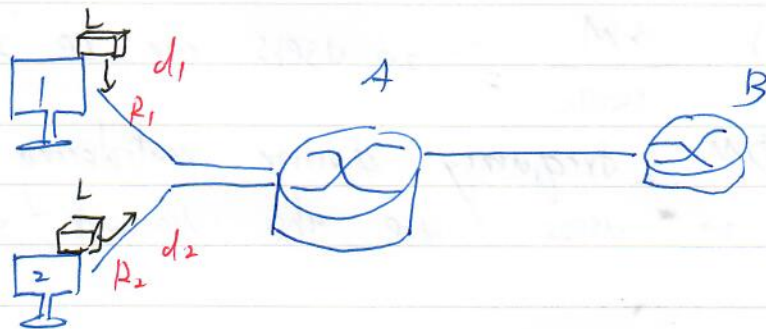
$$= C_n^{120} \times (10\%)^n (1-10\%)^{120-n}$$

$$(d) \sum_{i=21}^{120} C_i^{120} (10\%)^i (90\%)^{120-i}$$

$$= 1 - \sum_{i=0}^{20} C_i^{120} (10\%)^i (90\%)^{120-i}$$

$$\approx 0.00794119225 \quad (\text{By online binomial CDF calculator})$$

P11.



assume at $t=0$, host 1 & host 2 send packet simultaneously, the first packet arriving router A

$$\text{at } t = \min \left\{ d_1 + \frac{L}{R_1}, d_2 + \frac{L}{R_2} \right\}$$