

Rec-2-2014

Note Title

8/28/2014

Review for Test 2

Sample test #8 PBX = Private Branch
Exchange

#5 $R = 2 \text{ mb/s}$

Slotted ALOHA - $S_{max} = 36\%$

$$R_{max} = (2 \text{ mb/s}) \cdot 36$$

#4 $D = 30 \text{ km}$ $R = ~~16~~ 6 \text{ b/s}$ $L = 2000 \text{ bits}$
 $c = 3 \times 10^8 \text{ m/s}$ 16 b/s

a) $\gamma \approx 1$ $2 \times R = \# \text{ bits in RTT}$

$$= 2 \left(\frac{30 \times 10^3}{3 \times 10^8} \right) \cdot 10^9 = 200,000$$

$$\# \text{ frames in RTT} = \frac{200,000}{2000} = 100$$

$$N_{\max} \rightarrow 1 + \frac{2^{\text{RTT}}}{\text{RTT}} = 101$$

$$n = 6 \rightarrow 2^n - 1 = 63$$

$$n = 7 \rightarrow 2^n - 1 = 127$$

$$n = 7 \text{ bits}$$

$$b) \quad n = 3 \quad N_{\max} = 7$$

$$g = \frac{7}{1 + 100} = \frac{7}{101} \approx 7\%$$