7.2 An exponential fit to the data gives a life of $1.9 \times 10^{10} * 10^{-4.49V}$ hours. 10 years is 87660 hours. Solving for V gives a maximum voltage of 1.2 V.

7.6 A ring oscillator's period involves two trips around the ring, or 22 inverter delays. It has a mean of 22 * 10 = 220 ps and a standard deviation of sqrt(22) * 1 = 4.7 ps. According to Table 7.9, the slowest of the 100 ring oscillators has a mean delay of 220 + 2.50 * 4.7 = 231.8 ps and a standard deviation of 0.43 * 4.7 = 2.0 ps.

(a) 1 / 231.8 ps = 4.31 GHz.

(b) 97.7% yield corresponds to 2 sigma of variation, or a period of 231.8 + 2 * 2.0 = 235.8 ps. This corresponds to 4.24 GHz operation.