

# Quiz 1

## ECEn 370

Name: \_\_\_\_\_ Solution \_\_\_\_\_

1. Consider an internet packet switching system. Its server engine can handle arriving packets at the rate of 300,000 per second. Assume packets arrive following a Poisson distribution with a mean rate of  $\lambda = 100,000/\text{sec}$ . How large must the server queue be (in number of packets it can buffer) to insure that the dropped packet percentage is less than 0.01%?

TBD in 4-6 weeks.

2. Give at least one good technical reason for why it is important for electrical and computer engineers to understand probability theory.

Real signals of interest are almost all random in nature.

Deterministic signals carry no information.

Computing systems must respond to random external events and we must be able to characterize their performance in such environments.

It's where the interesting problems and applications are.

Many of you will take very few ECEN graduate class that does not involve random processes.

etc. etc. etc.