Q4

A system consists of five identical components connected in series as shown:



As soon as one component fails, the entire system will fail. Suppose each component has a lifetime that is exponentially distributed with mean λ = 2 years and that component fail independently of one another.

1. What is the probability that the first component is still working after 1 year?
2. What is the probability that the entire system fails in 1 year?

Q5

The monthly starting salaries of students who receive an MBA degree have a standard deviation of $70. What sample size should be selected so that there is a 95% confidence of estimating the mean monthly within a sampling error of $ 18 or less?

Q6

The compressive strength of a concrete is being used by an engineer and the results were recorded as follows:

221, 222, 231, 223, 230, 215, 210

Construct a 95% confidence interval on the mean strength.