CSL003P1M: Probability and Statistics

Assignment -VII (Solution Key)

November 21, 2019

Prob-1. $C = \frac{1}{2(n-1)}$.

Prob-2. $\overline{X} = 1.5, S^2 = 16.6$.

Prob-3. $\hat{\beta} = -1 - n/\log(x_1 x_2 \dots x_n)$.

Prob-4. (a) $\hat{\beta} = \frac{1}{\overline{T} - t_0}$, (b) $\hat{\beta} = \frac{1}{T_0 - t_0}\log(\frac{N}{N-k})$.

Prob-6. $\hat{a} = \frac{n}{n+1}a$, biased estimator.

Prob-7. $\hat{\mu} = -0.52$.

Prob-8. $n = 50$.

Prob-9. $\hat{\theta} = median$.

Prob-11. (a) 0.156, (b) 0.58, (c) 0.29.

Prob-12. (a) 0.01, (b) 0.77.

Prob-13. 0.85.

Prob-14.

$$P(\overline{X} = \overline{x}) = \frac{e^{-n\lambda}(n\lambda)^{n\overline{x}}}{(nx)!}, \quad \overline{x} = 0, \frac{1}{n}, \frac{2}{n}, \dots$$

.

Prob-15. 0.0571.