

CSL003P1M: Probability and Statistics

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Assignment -VII (Solution Key)

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Prob-1.

$$\mu \in \left(\bar{x} - \frac{t_{\alpha/2, n-1}s}{\sqrt{n}}, \bar{x} + \frac{t_{\alpha/2, n-1}s}{\sqrt{n}} \right).$$

$$\sigma^2 \in \left(\frac{(n-1)s^2}{\chi_{\alpha/2, n-1}^2}, \frac{(n-1)s^2}{\chi_{1-\alpha/2, n-1}^2} \right).$$

Prob-2.

$$\theta \in \left(\left(1 - \frac{1.96}{\sqrt{n}} \right) \frac{1}{\bar{x}}, \left(1 + \frac{1.96}{\sqrt{n}} \right) \frac{1}{\bar{x}} \right).$$

Prob-4. $\mu \in (77.26, 79.33)$.

Prob-5. $\mu \in \left(\bar{x} - \frac{s}{\sqrt{30}} t_{0.025, 29}, \bar{x} + \frac{s}{\sqrt{30}} t_{0.025, 29} \right)$, (Note: find \bar{x} , s and use t -table).

Prob-6. $\sigma^2 \in (0.85, 3.95)$.

Prob-7. $\alpha \in \left(\frac{x}{1-\sqrt{0.025}}, \frac{x}{1-\sqrt{0.975}} \right)$.

Prob-8. $p \in (0.07, 0.13)$.

Prob-9. $p \in (0.51, 0.63)$.

Prob-10. $\mu \in (163.73, 177.87)$.

Prob-11. $\mu \in (9.65, 12.09)$.