STAT 410 - Section 1 - Fall 2021 Homework #10

Sharvi Tomar

TOTAL POINTS

10 / 10

QUESTION 1

7 5 pts

1.1 7kl 2/2

- √ 0 pts Correct
 - 1 pts (k) wrong arrange of distribution
 - 1 pts (k) wrong final confidence interval
 - 0.5 pts (I) arithmetic miss
- 1.2 7m 0.5 / 0.5
 - √ 0 pts Correct
 - 0.5 pts wrong final sufficient statistic
- 1.3 7no 2.5 / 2.5
 - √ 0 pts Correct
 - 1 pts (n) wrong method for Fisher Information
 - 0.5 pts (n) arithmetic miss
 - 1 pts (o) wrong conclusion or wrong efficiency
- QUESTION 2
- **8** 4.5 pts
- 2.18hi 2/2
 - √ 0 pts Correct
 - 0.5 pts h) Wrong degree of freedom
 - 0.5 pts h) Wrong interval
 - 0.5 pts i) Wrong answer
- 2.2 8j 0.5 / 0.5
 - √ 0 pts Correct
 - 0.5 pts Not correct
- 2.3 8kl 2/2
 - √ 0 pts Correct
 - 0.5 pts Incorrect first/second order derivative(s) in

8k

- 0.5 pts Incorrect final ans in 8k
- 0.5 pts Calculation mistake in var (epsilon hat hat)
- 0.5 pts Wrong value of RCLB
- 0.5 pts Wrong value of efficiency

QUESTION 3

3 9d 0.5 / 0.5

- √ 0 pts Correct
 - 0.5 pts Incorrect likelihood
 - 0.5 pts Incorrect final ans

7) k) - ln
$$(1-\frac{x}{2})$$
 \(\text{ Gamma}\) \(\alpha = 1, \theta = \frac{1}{\psi} \)

Y = \frac{3}{2} - ln \(1-\frac{x_i}{2} \) \(\text{ Gamma}\) \(\alpha = n, \theta = 1/\psi \)

\[\frac{2}{1-\psi 12} \left(2n \right) \quad \frac{2}{2} \left(1-\frac{x_i}{2} \right) \quad \quad \frac{2}{2} \left(1-\frac{x_i}{2} \right) \quad \quad \frac{2}{2} \left(1-\frac{x_i}{2} \right) \quad \quad \quad \frac{2}{2} \left(1-\frac{x_i}{2} \right) \quad \quad

1.1 7kl 2 / 2

- 1 pts (k) wrong arrange of distribution
- 1 pts (k) wrong final confidence interval
- 0.5 pts (I) arithmetic miss

7. m) $\widehat{T} f(x_i, \psi) = \widehat{T} \psi(2-x_i)^{\psi-1}$ ocacz $= (\psi) \widehat{T}(2-x_i)^{\psi-1}$ By factorization Thorem, $\widehat{T}(2-x_i)$ is a sufficient statistic for ψ .

1.2 7m 0.5 / 0.5

- √ 0 pts Correct
 - **0.5 pts** wrong final sufficient statistic

In
$$f(x,y) = y(x-x)^{y-1}$$

or $f(x,y) = y(x-x)^{y-1}$

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or $f(x,y) = y(x-x)^{y-1}$

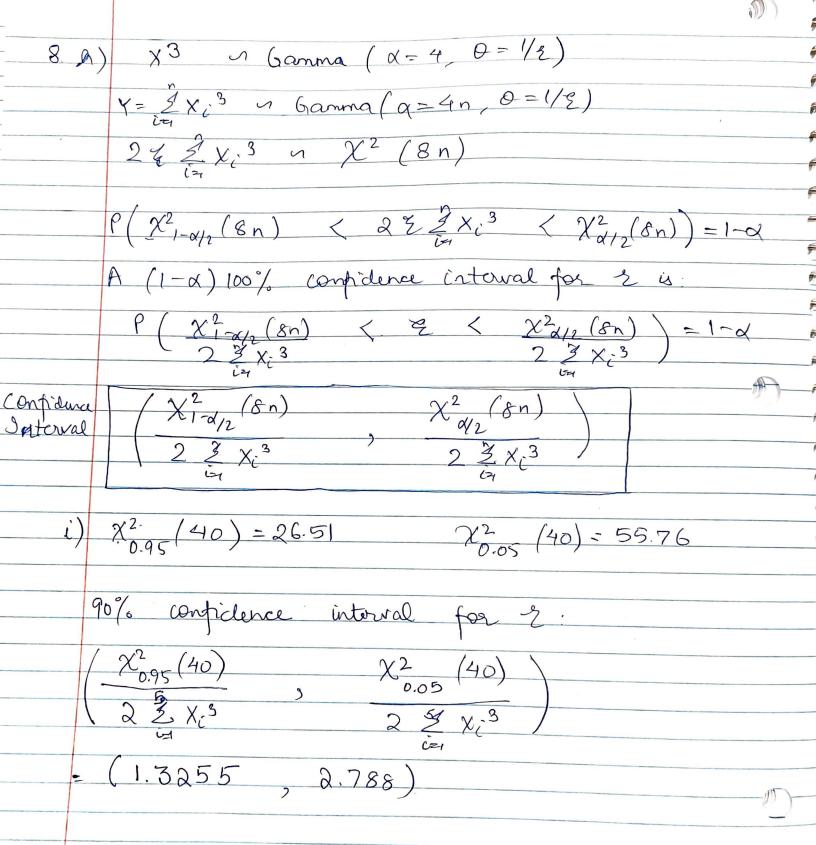
or $f(x,y) = y(x-x)$

or $f(x,y) = y(x-x)$

for $f(x,y) = y(x-x)$

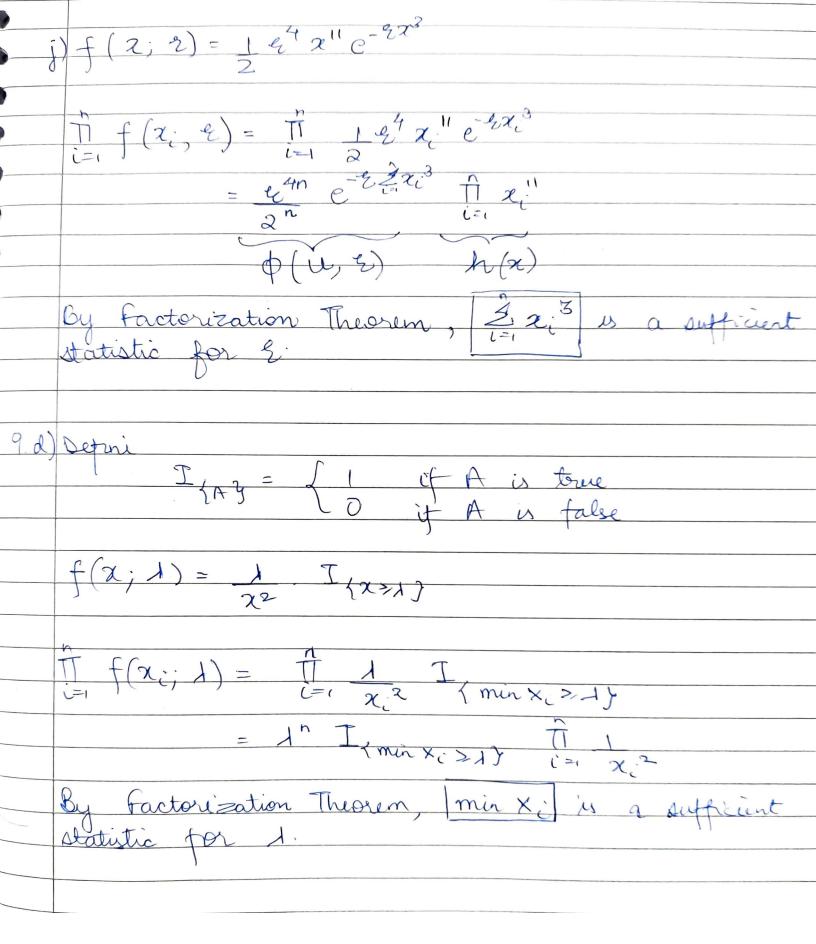
1.3 7no 2.5 / 2.5

- 1 pts (n) wrong method for Fisher Information
- **0.5 pts** (n) arithmetic miss
- 1 pts (o) wrong conclusion or wrong efficiency



2.18hi 2/2

- **0.5 pts** h) Wrong degree of freedom
- **0.5 pts** h) Wrong interval
- **0.5 pts** i) Wrong answer



2.2 8j 0.5 / 0.5

- √ 0 pts Correct
 - **0.5 pts** Not correct

8. k)
$$f(x; \xi) = \frac{1}{2} \xi^4 x'' e^{-\xi x^3}$$

In $f = -\ln x + 4 \ln \xi + 11 \ln x - \xi x^3$

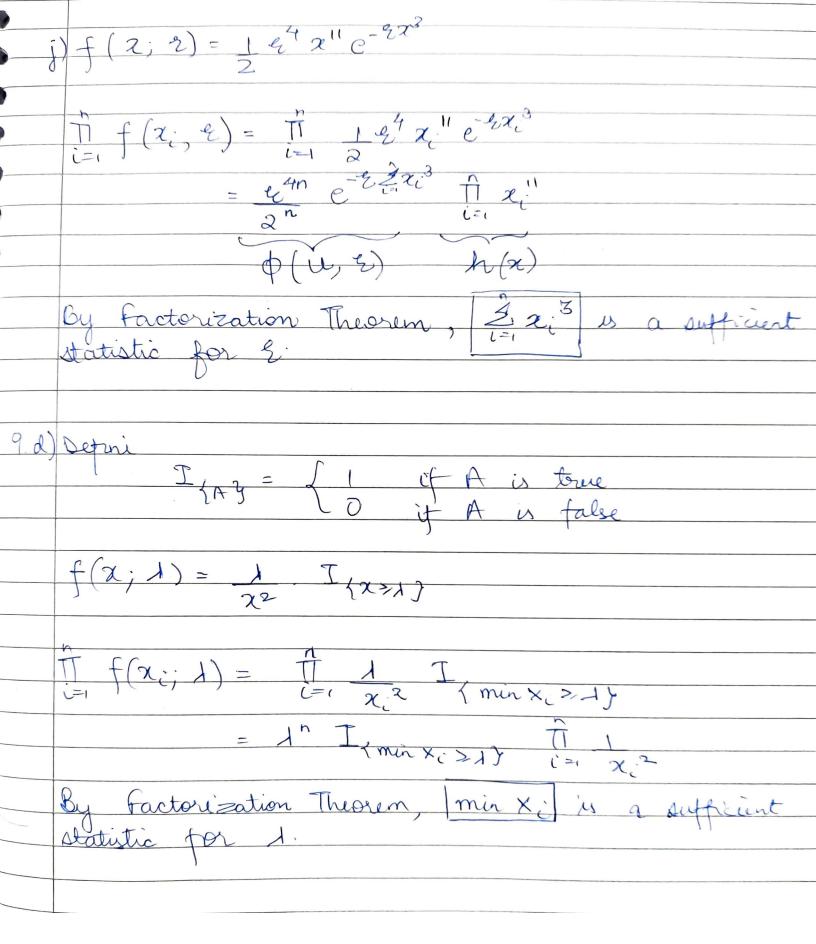
In $f = 4 - 2^3$

If $f = 4 - 2^3$

If $f = -4$

2.3 8kl 2/2

- **0.5 pts** Incorrect first/second order derivative(s) in 8k
- **0.5 pts** Incorrect final ans in 8k
- **0.5 pts** Calculation mistake in var (epsilon hat hat)
- **0.5 pts** Wrong value of RCLB
- **0.5 pts** Wrong value of efficiency



3 9d **0.5 / 0.5**

- √ 0 pts Correct
 - **0.5 pts** Incorrect likelihood
 - **0.5 pts** Incorrect final ans