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Unit 14 - Week 12

Course outline

How to access the portal

Pre-requisite Assignment

Week 1

Week 2

Week 3

Week 4

Week 5

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Week 7

Week 8

Week 9

Week 10

Week 11

Assignment 12

The due date for submitting this assignment has passed. **Due on 2019-10-23, 23:59 IST.**
As per our records you have not submitted this assignment.

1) The probability distribution of Weibull distribution with parameters k, λ ***1 point***

$$f(x) = \begin{cases} \frac{k}{\lambda}\left(\frac{x}{\lambda}\right)^{k-1} e^{-(\frac{x}{\lambda})^k} & if\ x \geq 0 \\ 0 & otherwise \end{cases}$$

Suppose the parameter of interest is λ and k is a nuisance parameter. Here the natural parameter is

- $-\frac{1}{\lambda}$
- λ
- $-\frac{1}{\lambda^k}$
- none of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
$-\frac{1}{\lambda^k}$

2) The probability distribution of Weibull distribution with parameters k, λ ***1 point***

Week 12

- Generalized Linear Model (Part A) (unit?unit=70&lesson=71)
- Generalized Linear Model (Part B) (unit?unit=70&lesson=72)
- Non-Linear Estimation (unit?unit=70&lesson=73)
- WEEK 12 - FEEDBACK - Regression analysis (unit?unit=70&lesson=74)
- Assignment 12 solution (unit?unit=70&lesson=75)
- **Quiz : Assignment 12 (assessment?name=95)**

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$$f(x) = \begin{cases} \frac{k}{\lambda}\left(\frac{x}{\lambda}\right)^{k-1} e^{-(\frac{x}{\lambda})^k} & if\ x \geq 0 \\ 0 & otherwise \end{cases}$$

Suppose the parameter of interest is λ and k is a nuisance parameter. Is this density in canonical form ?

- Yes
- No

No, the answer is incorrect.
Score: 0
Accepted Answers:
No

3) Consider the density with parameter θ ***1 point***

$$f(x, \theta) = \theta x^{-(1+\theta)}, x \geq 0$$

Is this density in canonical form?

- Yes
- No

No, the answer is incorrect.
Score: 0
Accepted Answers:
No

4) The probability density function of Chi-square distribution with parameter k, is ***1 point***

$$f(x, k) = \frac{1}{2^{\frac{k}{2}}\Gamma\frac{k}{2}} x^{\frac{k}{2}-1} e^{-\frac{x}{2}}, \quad x \geq 0$$

Is this density a member of exponential family?

- Yes
- No

No, the answer is incorrect.
Score: 0
Accepted Answers:
Yes

5) The probability density function of Chi-square distribution with parameter k, is ***1 point***

$$f(x, k) = \frac{1}{2^{\frac{k}{2}}\Gamma\frac{k}{2}} x^{\frac{k}{2}-1} e^{-\frac{x}{2}}, \quad x \geq 0$$

The natural parameter is

- $\frac{k}{2} + 1$
- k

$\frac{k}{2} - 1$

$\frac{k}{2}$

No, the answer is incorrect.
Score: 0

Accepted Answers:
$\frac{k}{2} - 1$

6) The probability density function of Chi-square distribution with parameter k, is **1 point**

$$f(x,k) = \frac{1}{2^{\frac{k}{2}}\Gamma\frac{k}{2}} x^{\frac{k}{2}-1} e^{-\frac{x}{2}}, \quad x \geq 0$$

Is this density in canonical form?

Yes

No

No, the answer is incorrect.
Score: 0

Accepted Answers:
No

7) Suppose you have n observations of variables $X_1, X_2, \ldots, X_k, Y$, where the X's are regressors and Y is a response variable. Suppose Y's are **1 point**

Poisson variables. We consider fitting a model $f(Y) = \beta_0 + \beta_1 X_1 + \ldots + \beta_k X_k + \epsilon$. What is a reasonable choice of $f(Y)$?

$\ln Y$

e^Y

$\ln\left(\frac{Y}{1-Y}\right)$

$\frac{1}{Y}$

No, the answer is incorrect.
Score: 0

Accepted Answers:
$\ln Y$

8) Suppose you have n observations of variables $X_1, X_2, \ldots, X_k, Y$, where the X's are regressors and Y is a response variable. Suppose Y's are **1 point**

Gamma variables. We consider fitting a model $f(Y) = \beta_0 + \beta_1 X_1 + \ldots + \beta_k X_k + \epsilon$. What is a reasonable choice of $f(Y)$?

$\ln Y$

e^Y

$\ln\left(\frac{Y}{1-Y}\right)$

$\frac{1}{Y}$

No, the answer is incorrect.
Score: 0

Accepted Answers:
$\frac{1}{Y}$