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NPTEL (<https://swayam.gov.in/explorer?ncCode=NPTEL>) » Data Science for Engineers (course)


Course outline

How does an NPTEL online course work?

Setup Guide

Pre Course Material

Week 0

Week 1

Week 2

Week 3

☐ Statistical Modelling (unit? unit=48&lesson=49)

☒ Random Variables and Probability Mass/Density Functions (unit? unit=48&lesson=50)

☒ Sample Statistics

Week 3: Assignment 3

The due date for submitting this assignment has passed.

Due on 2021-08-25, 23:59 IST.

Assignment submitted on 2021-08-25, 08:23 IST

1) Sum of the deviations about mean is

1 point

- ☐ Infinite
☐ One
☒ Zero
☐ None of the above

Yes, the answer is correct.

Score: 1

Accepted Answers:

Zero

2) The mode of the normal distribution is

1 point

- ☐
 μ
☐
 $1/\sigma$
☐
 σ
☒ None of the above

No, the answer is incorrect.

Score: 0

Accepted Answers:

μ

3) For the positively skewed distribution the extreme values will lie in _____

1 point

(unit?
unit=48&lesson=51)

☐ Hypotheses
Testing (unit?
unit=48&lesson=52)

☐ FAQ (unit?
unit=48&lesson=53)

☐ Week 3
Feedback
Form: Data
Science for
Engineers
(unit?
unit=48&lesson=54)

☒ Practice: Week
3 :Assignment
3 (Non
Graded)
(assessment?
name=122)

☒ Quiz: Week 3:
Assignment 3
(assessment?
name=131)

☒ Week 3:
Solutions
(unit?
unit=48&lesson=138)

Week 4

Week 5

Week 6

Week 7

Week 8

Text Transcripts

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Books

- ☒ Left tail of the distribution
☐ Right tail of the distribution
☐ Near mean value
☐ None of the above

No, the answer is incorrect.

Score: 0

Accepted Answers:

Right tail of the distribution

4) The domain of the t distribution is

1 point

- ☐
 ∞ to 1
☒
 $-\infty$ to ∞
☐
 $-\infty$ to 0
☐ None of the above

Yes, the answer is correct.

Score: 1

Accepted Answers:

$-\infty$ to ∞

5) The statistical power of a test is denoted by

1 point

- ☐
 $1 - \alpha$
☐
 α
☒
 $1 - \beta$
☐ None of the above

Yes, the answer is correct.

Score: 1

Accepted Answers:

$1 - \beta$

6) If type I error is decreases

1 point

- ☐ Type II error decreases
☒ Type II error increases
☐ Type II error remain constant
☐ None of the above

Yes, the answer is correct.

Score: 1

Accepted Answers:

Type II error increases

Download the data set "seatbelts.csv"

(https://drive.google.com/file/d/1tw4M03V9m3V_ZPwmtC8v6NxxSHJ9_3i7/view?usp=sharing).

Load the data set into your R workspace and answer the questions 7 to 10.

The data set contains data about the road casualties in Great Britain between 1969 and 1984.

The description of the dataset is given below: The 'Seatbelts' data set in R is a multiple time-series data set that was commissioned by the Department of Transport in 1984 to measure differences in deaths before and after front seat belt legislation was introduced on 31st January 1983. It provides monthly total numerical data on a number of incidents including those related to death and injury in Road Traffic Accidents (RTA's). The data set starts in January 1969 and observations run until December 1984.

Variable name	Description
Year	Year of the incident
Month	Month of the incident
DriversKilled	Number of car drivers killed
drivers	Total number of drivers
front	Number of front-seat passengers killed or seriously injured.
rear	Number of rear-seat passengers killed or seriously injured.
kms	Total number of distances driven
PetrolPrice	Petrol price
VanKilled	number of van ('light goods vehicle') drivers killed
law	0/1: was the law in effect that month?

7) The average number of car drivers killed after the law was in effect is ____? **1 point**

Hint: Use the function filter from "dplyr" package to subset the dataset

- ☐ 90
☐ 85
☒ 100
☐ None of the above

Yes, the answer is correct.

Score: 1

Accepted Answers:

100

8) How many front seat passengers were injured or killed in the year 1984 **1 point**

- ☐ 7041
☒ 7047
☐ 7865
☐ None of the above

Yes, the answer is correct.

Score: 1

Accepted Answers:

7047

9) Calculate the variance for the variables "front" and "rear" and choose the correct option. **1 point**

- ☐ Variance of front seat passengers is equal to variance of rear seat passengers.
- ☐ Variance of front seat passengers is greater than variance of rear seat passengers.
- ☒ Variance of front seat passengers is less than the variance of rear seat passengers.
- ☐ None of the above

No, the answer is incorrect.

Score: 0

Accepted Answers:

Variance of front seat passengers is greater than variance of rear seat passengers.

10) Maximum kms driven by the driver is ____? **1 point**

- ☒ 21626
- ☐ 17203
- ☐ 25245
- ☐ None of the above

Yes, the answer is correct.

Score: 1

Accepted Answers:

21626