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Courses » Applied Time-Series Analysis

Announcements

Course

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## Unit 6 - Week 1: Introduction & Overview

### Course outline

R-based Exam

How to access the portal?

Assignment 0

R Tutorials

**Week 1: Introduction & Overview**

- Course Notes for Week 1
- Lecture 01A: Motivation and Overview-1
- Lecture 01B: Motivation and Overview-2
- Lecture 02A: Motivation and Overview-3
- Lecture 02B: Motivation and Overview-4
- Lecture 03A: Motivation and Overview-5
- Lecture 03B: Motivation and Overview-6
- Lecture 04A: Probability and Statistics Review (Part 1)-1
- Lecture 04B: Probability and Statistics Review (Part 1)-2
- Lecture 05A: Probability and Statistics Review (Part 1)-3
- Lecture 05B: Probability and Statistics Review (Part 1)-4
- Quiz : Week 1 Assignment
- Data set: co2.Rdata
- Solutions to Week 1 Assignment
- Week 1 feedback

**Week 2: Review of Probability & Statistics****Week 3: Introduction to Random Processes, Auto- and Cross-Correlation Functions****Week 4: Auto- and cross-correlation functions (contd.), Models for Linear Stationary Processes****Week 5: Models for Linear Stationary & Non-Stationary Processes****Week 6: Models for Linear Non-Stationary Processes (contd.), Fourier Transforms****Week 7: Fourier Transforms, DFT and Periodogram**

### Week 1 Assignment

The due date for submitting this assignment has passed.  
As per our records you have not submitted this assignment.

**Due on 2018-02-05, 23:59 IST**

1)

1 point

1. The weights of apple at a particular farm are determined to be normally distributed with a mean of 65.7 grams and a standard deviation of 1.2 grams. If apple samples of size  $n$  are drawn and the mean of each of the samples,  $\bar{X}$  is calculated. What type of distribution does  $\bar{X}$  possess?
- Exponential distribution
  - Discrete uniform distribution
  - Normal distribution
  - Continuous uniform distribution

- a  
 b  
 c  
 d

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

c

2)

1 point

2. A random variable has p.d.f,  $f(x) = kx(x + \sqrt{x})$ ,  $x \in [0, 1]$ . What is the value of  $k$  that  $f(x)$  is a legitimate p.d.f?

- $\frac{15}{11}$
- $\frac{5}{6}$
- $\frac{11}{15}$
- $\frac{1}{15}$

- a  
 b  
 c  
 d

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

a

3)

1 point

3. For the p.d.f given in Question 2, the value of  $E(\sqrt{x})$  is \_\_\_\_\_.

- $\frac{77}{65}$
- $\frac{7}{65}$
- $\frac{6}{77}$
- $\frac{6}{7}$

Week 8: Spectral Representations & Estimation Theory

Week 9: Estimation Theory

Week 10: Estimation Methods

Week 11: Estimation methods (contd.)

Week 12: Estimation of Power Spectral Density & Time Series Models

Case Studies on Modelling

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Interactive Session

- a  
 b  
 c  
 d

No, the answer is incorrect.

Score: 0

Accepted Answers:

c

4)

4. A random variable has the p.d.f.  $f(x) = \frac{2x+1}{25}$ ,  $x = 0, 1, 2, 3, 4$ . The value of  $E\{X^2\}$  is \_\_\_\_\_.

- a.  $\frac{7}{25}$   
b.  $\frac{1}{25}$   
c.  $\frac{1}{7}$   
d. 1

- a  
 b  
 c  
 d

No, the answer is incorrect.

Score: 0

Accepted Answers:

a

5)

5. It is known that the measurement of current flow in a copper wire follows a uniform distribution with an interval of  $[0, 20]$  mA. The probability of measured current between 5 mA and 10 mA at any instant is \_\_\_\_\_.

- a. 0.05  
b. 0.5  
c. 0.2  
d. 0.25

- a  
 b  
 c  
 d

No, the answer is incorrect.

Score: 0

Accepted Answers:

d

6)

6. Suppose the current measurement in Question 5 follows a Gaussian distribution with 8 mA and variance  $4 \text{ mA}^2$ . The probability of measured current exceeding 12 \_\_\_\_\_.

- a. 0.023  
b. 0.23  
c. 0.02  
d. 0.025

- a  
 b  
 c  
 d

No, the answer is incorrect.

Score: 0

Accepted Answers:

a

7)



1 point



1 point

1 point

1 point

7. Each sample of water has a 10% chance of containing a particular organic pollutant. / that the samples are independent with regards to the presence of the pollutants represents the number of samples that contain the pollutant in next 18 samples an what is the skewness of  $X$ ?

- a. 0.495
- b. 0.628
- c. 0.267
- d. 0.367

- a
- b
- c
- d

No, the answer is incorrect.

Score: 0

Accepted Answers:

b

8)

1 point

8. Suppose two independent random variables  $X$  and  $Y$  follow a uniform distribution interval  $[0, 2\pi]$ . If  $Z = X + Y$ , the distribution of  $Z$  is\_\_\_\_\_.

- a. Normal distribution with mean 0 and variance  $4\pi^2$
- b. Uniform distribution in the interval  $[0, 4\pi]$
- c. Triangular distribution in the interval  $[0, 4\pi]$
- d. Trapezoidal distribution in the interval  $[0, 4\pi]$

- a
- b
- c
- d

No, the answer is incorrect.

Score: 0

Accepted Answers:

c

9)

1 point

9. For the data given in co2.Rdata, what characteristics do you infer from a visual al

- a. Only trend
- b. No trend, only periodicities
- c. Periodicities, trend and heteroskedasticity (variance changing with time)
- d. Periodicities and trend but no heteroskedasticity

- a
- b
- c
- d

No, the answer is incorrect.

Score: 0

Accepted Answers:

d

10)

1 point

10. For the data given in co2.Rdata, identify the months that have the minimum me variance, respectively, across all years.

- a. March, April
- b. October, September
- c. June, May
- d. September, October

- a



- b
- c
- d

No, the answer is incorrect.

Score: 0

Accepted Answers:

b

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