Started on	Wednesday, September 30, 2020, 9:30 PM
State	Finished
Completed on	Wednesday, September 30, 2020, 9:45 PM
Time taken	15 mins 9 secs
Grade	**8.00** out of 8.00 (**100**%)

Question **1**

Correct

1.00 points out of 1.00

What is the best way to model a long, deterministic seasonality (the length of a season is long, for example 365)?

Select one:

- a. Regular differences
- b. Seasonal differences
- c. Dummy variables
- d. Sines and Cosines ✔

Your answer is correct.

The correct answer is: Sines and Cosines

Question **2**

Correct

1.00 points out of 1.00

The notation $B^3(Y)$ represents what lag of Y?

Answer: 3 ✔

3

The correct answer is: 3

Question **3**

Correct

1.00 points out of 1.00

The following SAS code represents _____

estimate p=(1)(12) method=ML;

Select one:

- a. An additive seasonal effect
- b. A multiplicative seasonal effect ✔
- c. No seasonal effect
- d. A moving average model

Your answer is correct.

The correct answer is: A multiplicative seasonal effect

Question 4

Complete

1.00 points out of 1.00

Explain what you would expect to see in the PACF plot for the following model: ARIMA(0,0,0)(0,0,1)$_{12}$

decreasing humps at each 12th lag (12, 24, 36, etc.)

We would expect to see an exponentially decreasing pattern every 12th lag (lag 12, 24, 36...).

Comment:

Question 5

Correct

1.00 points out of 1.00

If a time series had a trend and seasonality, we should take care of trend first.

Select one:

- True
- False ✔

The correct answer is 'False'.

Question 6

Complete

2.00 points out of 2.00

Write out what terms would be in the following model?

ARIMA(2,0,1)(1,0,3)$_4$

2 nonseasonal AR terms, 1 nonseasonal MA term

1 seasonal AR term, 3 seasonal MA terms,

4 for season

no differences

phi1*y(t-1) + phi2*y(t-2) + theta1*e(t-1) + phi3*y(t-4) + theta2*e(t-4) + theta3*e(t-8) + theta4*e(t-12)

Comment:

Question 7

Correct

1.00 points out of 1.00

If a time series exhibits white noise after fitting a trend line and sines and cosines, then we do not need to do an ARIMA to model this data set.

Select one:

- True ✔
- False

The correct answer is 'True'.

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