← SARIMA processes

5/5 points (100.00%)

Quiz, 5 questions

✓ Congratulations! You passed!

Next Item



1/1 points

1.

Find the order of the following SARIMA process with the span of the seasonality S=12.

$$(1 + 0.1B - 0.2B^2)(1 + 0.25B^{12})X_t = (1 - 0.3B)(1 + 0.5B^{12})Z_t$$



 $\mathsf{SARIMA}(2,0,1,12,0,12)_{12}.$

Un-selected is correct



 $SARIMA(14, 0, 13, 0, 0, 0)_1$

Correct

Correct!

The total number of parameters in this model is 27+1=28. In modeling, we prefer the simplest possible model to avoid overfitting. Including the span of the seasonality of 12 would give us a simpler model.



 $SARIMA(2,0,1,1,0,1)_{12}$.

Correct

Correct!

There is no differencing in the process, thus d=0 and D=0. AR polynomial gives p=2, and seasonal AR polynomial with degree 12*1 gives P=1.



1/1 points

2.

Find the order of the following SARIMA process with the span of the seasonality S=12.

$$(1+0.1B)(1+0.25B^{12}-0.7B^{24})(1-B)(1-B^{12})X_t=Z_t$$



 $SARIMA(38, 0, 0, 0, 0, 0, 0)_1.$

Correct

Correct!

 \leftarrow

SARIMA DEOCOSSES but correct. If we expand the polynomial

5/5 points (100.00%)

Quiz, 5 questions $(1+0.1B)(1+0.25B^{12}-0.7B^{48})(1-B)(1-B^{12})$, we obtain an AR polynomial with a degree of 38.



 $SARIMA(1, 1, 0, 2, 1, 1)_{12}$

Un-selected is correct



SARIMA $(2, 1, 0, 1, 1, 0)_{12}$.

Un-selected is correct



SARIMA $(1, 1, 0, 2, 1, 0)_{12}$.

Correct

Correct!

Seasonal AR polynomial has a degree of 24 = 2 * 12 which gives us P = 2.



1/1 points

Let X_t be the process $\mathsf{SARIMA}(0,0,2,0,0,1)_{12}$ with MA coefficients 0.2,0.3, seasonal MA coefficient 0.5 and $\sigma_Z^2=1$. Which of the following equation(s) govern X_t ?



$$X_t = (1 + 0.2B + 0.3B^2)(1 + 0.5B^{12})Z_t.$$

Correct



$$X_t = (1 + 0.2B + 0.3B^2 + 0.5B^{12} + 0.1B^{13} + 0.15B^{14})Z_t.$$

Correct



$$X_t = -0.2X_{t-1} - 0.3X_{t-2} - 0.5X_{t-12} - 0.1X_{t-13} - 0.15X_{t-14} + Z_t.$$

Un-selected is correct



$$X_t = Z_t + 0.2Z_{t-1} + 0.3Z_{t-2} + 0.5Z_{t-12} + 0.1Z_{t-13} + 0.15Z_{t-14}.$$

Correct



5/5 points (100.00%)

Quiz, 5 questions

Continuation of Question 3.

Let X_t be the process SARIMA $(0,0,2,0,0,1)_{12}$ with MA coefficients 0.2,0.3, seasonal MA coefficient 0.5 and $\sigma_Z^2=1$. Find $\rho(3)$?

0.2134

Un-selected is correct



1

Un-selected is correct



0

Correct

Correct!



1/1 points

5.

Continuation of Question 3.

Let X_t be the process SARIMA $(0,0,2,0,0,1)_{12}$ with MA coefficients 0.2,0.3, seasonal MA coefficient 0.5 and $\sigma_Z^2=1$. Find $\lambda(10)$.



0.15

Correct

Correct!

 Z_{t-12} is common term with coefficinest 0.3 and 0.5 for both equatoins of X_t and X_{t-10} .

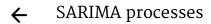


0.3



0

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5/5 points (100.00%)

Quiz, 5 questions