View Report

R1

(Number of First Attempts: 40)

MCQ

Question 1

An AR(1) process is Y(t) = 3 + 0.5Y(t-1) + e(t). What is the unconditional mean of the process?

➡ 6	37	(92.5 %)
3	3	(7.5 %)
0.5	0	(0 %)
0	0	(0 %)

Average Grade: 0.93 / 1 (92.5 %)

Question 2

An AR(1) process is Y(t) = 2 + 0.5Y(t-1) + e(t). What is the unconditional variance of the process if variance of the error term is 0.5?

➡ 0.6667	35	(87.5 %)
2	2	(5 %)
0.5	2	(5 %)
4	1	(2.5 %)

Average Grade: 0.88 / 1 (87.5 %)

Question 3

An AR(1) process is Y(t) = 2 + 6Y(t-1) + e(t). What is the unconditional mean of the process?

4	0	(0 %)
0	1	(2.5 %)
6	0	(0 %)
➡ A finite unconditional mean does not exist and process is not stationary	39	(97.5 %)

Average Grade: 0.98 / 1 (97.5 %)

Question 4

What is the unconditional mean of the following MA(2) process: Y(t) = 5 + 0.1e(t-1) + 0.2e(t-2) + e(t)

0.1	0	(0 %)
➡ 5	40	(100 %)

Average Grade: 1 / 1 (100 %)

50		0	(0 %)
25		0	(0 %)

Question 5

Which of the following is true of AR(p) and MA(q) processes?

Average Grade: 0.73 / 1 (72.5 %)

Both AR(p) and MA(q) processes may or may not be covariance stationary depending on coefficients, p and q.		11	(27.5 %)
Both AR(p) and MA(q) processes are never covariance stationary		0	(0 %)
Both AR(p) and MA(q) processes are always covariance stationary		0	(0 %)
➡ AR(p) processes may or may not be covariance stationary but MA(q) is always covariance stationary		29	(72.5 %)

Question 6

What is a characteristic of ACF for an AR(1)?

Average Grade: 0.98 / 1 (97.5 %)

Exponentially but smoothly increasing in absolute value as lag k increases		1	(2.5 %)
Slowly decreasing with lag k up to a certain point, then sharply dropping		0	(0 %)
➡ Exponentially but smoothly decaying in absolute value as lag k increases		39	(97.5 %)

Slowly increasing with lag k up to a certain point, then sharply dropping	0	(0 %)

Question 7

What is a characteristic of the PACF for AR(3)?

➡ Slowly decreasing in absolute value up to k = 3, then sharply falls towards 0 in absolute value	37	(92.5 %)
Slowly decreasing in absolute value up to k = 36, then sharply falls towards 0 in absolute value	0	(0 %)
Absolute value takes smooth exponential decay towards 0 as lag k increases	1	(2.5 %)
None of above	2	(5 %)

Average Grade: 0.93 / 1 (92.5 %)

Question 8

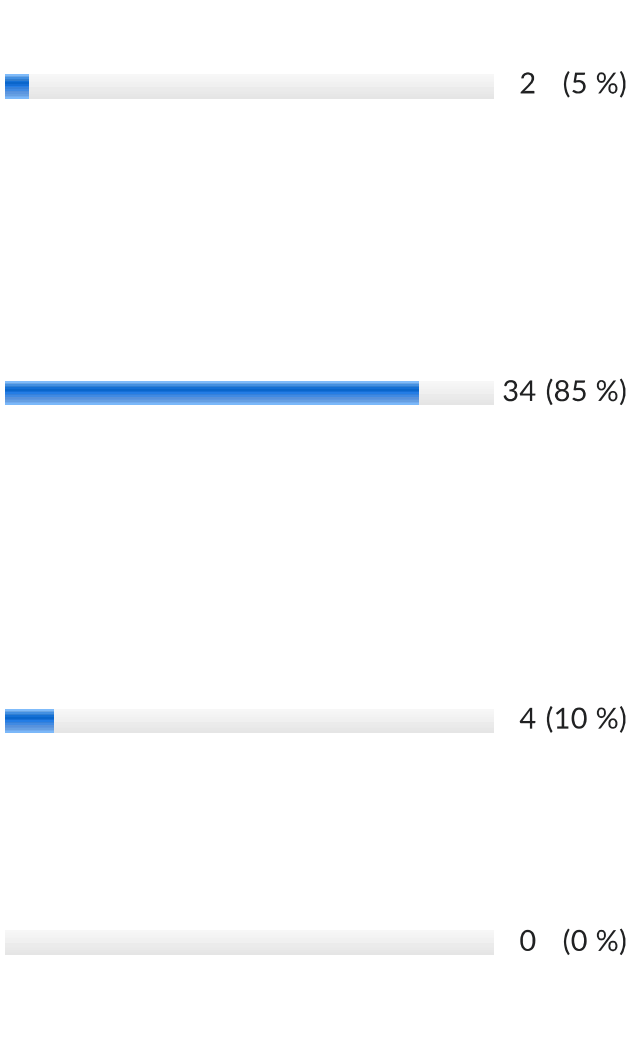
What is an ARMA(1,2) model?

Simple sum of AR(2) and MA(1) models	1	(2.5 %)
➡ Simple sum of AR(1) and MA(2) models	39	(97.5 %)
Model made up of machine learning algorithm with AR and MA models as inputs	0	(0 %)
Product of AR and MA models of arbitrary order to be determined by automated modelling	0	(0 %)

Average Grade: 0.98 / 1 (97.5 %)

Question 9

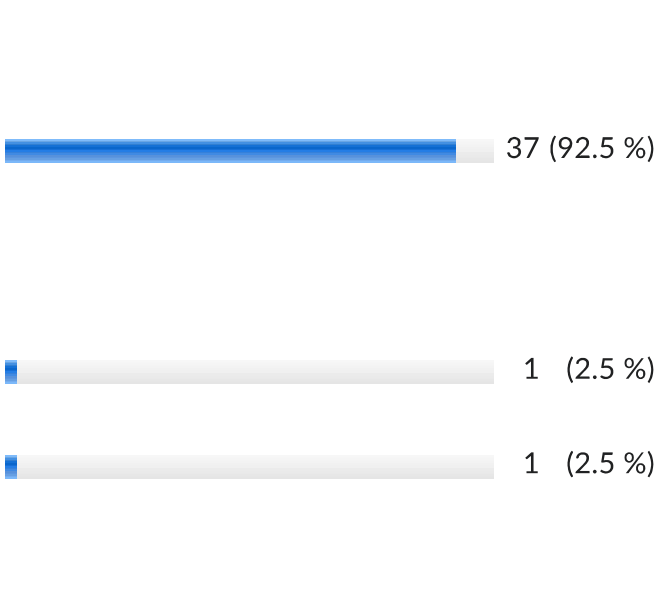
What is the use of ACF and PACF for a time series?



Average Grade: 0.85 / 1 (85 %)

Question 10

What is the ARIMA model?



Average Grade: 0.93 / 1 (92.5 %)

step as the input to the next

None of above 1 (2.5 %)

Question 11

Residuals in a time series estimation (AR, MA, ARMA, ARIMA) should have what properties?

Mean = 0 0 (0 %)

Constant variance 2 (5 %)

Zero autocorrelation 1 (2.5 %)

➡ All of the above 37 (92.5 %)

Average Grade: 0.93 / 1 (92.5 %)

Question 12

A very extremely slowly decaying ACF without any seasonal patterns is a clear and obvious indication of which of the following?

➡ Long term directional trend in the data; data is not stationary and likely requires one or more differences 40 (100 %)

Seasonality in the data 0 (0 %)

Underlying variable is close to stationary 0 (0 %)

Underlying variable is white noise 0 (0 %)

Average Grade: 1 / 1 (100 %)

Question 13

An MA(1) process is Y(t) = 10 + 0.5e(t-1) + e(t). What is the autocorrelation between Y(t) and Y(t-10)?

➡ 0 35 (87.5 %)

0.5 1 (2.5 %)

0.6 0 (0 %)

None of above 4 (10 %)

Average Grade: 0.88 / 1 (87.5 %)

Question 14

An AR(1) process is Y(t) = 1 + 0.1Y(t-1) + e(t). What is the autocorrelation between Y(t) and Y(t-5)?

➡ 0.1 to the power of 5 35 (87.5 %)

0.1 1 (2.5 %)

Average Grade: 0.88 / 1 (87.5 %)

(1-0.1) to the power of 5	4	(10 %)
1	0	(0 %)