Started on	Wednesday, 22 April 2020, 9:42 AM
State	Finished
Completed on	Wednesday, 22 April 2020, 10:09 AM
Time taken	27 mins
Grade	**7.00** out of 10.00 (**70**%)

Question **1**

Correct

Mark 1.00 out of 1.00

Assuming the regularity conditions hold, the Information Matrix provides us with the asymptotic variances of each of ML estimators of the parameters, as well as the covariance between each pair of ML estimators.

Select one:

- True
- False ✔

Correct.

The correct answer is 'False'.

Question **2**

Incorrect

Mark 0.00 out of 1.00

The ML estimators for the mean and variance of a normal distribution are uncorrelated, but not independent.

Select one:

- True ✖
- False

The are independent (and hence, uncorrelated).

The correct answer is 'False'.

Question **3**

Incorrect

Mark 0.00 out of 1.00

Likelihood ratio tests compare the likelihood maximized under the null space to the likelihood maximized under what other space?

Answer: alternative space ✖

The joint null and alternative space.

The correct answer is: joint null and alternative

Question **4**

Correct

Mark 1.00 out of 1.00

Likelihood ratio tests strike a balance between conservativeness and power.

Select one:

- True ✔
- False

Correct.

The correct answer is 'True'.

Question **5**

Incorrect

Mark 0.00 out of 1.00

What two components make up the mean-square error?

Answer: parameter \theta and decision function \delta (of statistic Y) ✖

The correct answer is: Bias variance

Question **6**

Complete

Mark 2.00 out of 2.00

In your own words, describe how a minimax decision function works.

A minimax decision function is one that produces the ``best'' worst-case scenario, that is, it produces a risk function whose maximum is less than or equal to the maximum of the risk function produced by any other decision function.

Comment:
Great response!

Question **7**

Correct

Mark 1.00 out of 1.00

The MVUE is the best estimator among all unbiased estimators, provided one is using the mean square error loss function.

Select one:

- True ✔
- False

Correct

The correct answer is 'True'.

Question **8**

Complete

Mark 2.00 out of 2.00

In your own words, describe the difference between a loss function and a risk function.

A loss function is a nonnegative number that characterizes how far off the ``decision'' (\delta(Y)) is from the true parameter \theta. The risk function is the expectation value of the loss function.

Comment:
Good!

◄ Sufficiency part 2

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Completeness and uniqueness part 1 ►