**Chapter 10 Introduction to time series analysis – MCQ Student**

1. It is essential for the time series to be measured in equidistant units of time
   1. True
   2. False

The correct answer is a.

Support comment: It is one of the most fundamental pre-requisites of time series analysis that observations need to be taken at the equidistant time units. All the methods, without exception, assume that this is the case. Otherwise, the data is considered invalid. The alternative is to use some form of interpolation if a single observation is missing.

1. If a value is missing in a time series we can do one of the following
   1. Just copy the previous value
   2. Estimate it as an average between two neighbouring values
   3. Ignore it

The correct answer is b.

Support comment: The missing value in a time series is unacceptable. There are various ways to interpolate the values if there is a missing observation. If the series is stationary (horizontal) an overall series mean values can be substituted for the missing value. If the series is non-stationary (with upward or downward trend) then an average value of the two neighbouring observation can be used for the missing observation.

1. One of the classifications of time series is that they can be either
   1. Categorical or ordinal
   2. Stationary or non-stationary
   3. Inflationary or non-inflationary

The correct answer is b.

Support comment: The most fundamental classification of different types of time series is into the stationary and non-stationary series. The stationary series move horizontally around some fixed mean value, whilst the non-stationary series have a moving average, i.e. they are moving either upwards or downwards.

1. A premise of the classical time series decomposition method is to separate the components and then to
   1. Recompose them by putting them together
   2. Isolate them for individual forecasts
   3. Test the level of significance for every component

The correct answer is a.

Support comment: According to classical time series analysis, a time series consists of four components (not all of them always present in every time series): the trend, cyclical component, seasonal component and the irregular component. The objective of classical time series analysis is to identify these components, predict the future values and recompose them to produce the forecast.

1. Which one of the following statements is not true
   1. Stationary series are characterised by a constant mean
   2. Seasonal series have a constant mean
   3. Non stationary series are characterised by moving mean

The correct answer is b.

Support comment:

1. For a series with n observations, it can be extrapolated for another n number of periods
   1. True
   2. False

The correct answer is b.

Support comment: The maximum number of forecasts should not exceed n/3 number of observations

1. Forecasting errors are typically calculated as
   1. Actual minus the forecasted value
   2. Forecasted minus the actual value
   3. Actual minus the mean value
   4. Forecasted minus the moving average value

The correct answer is a.

Support comment:

1. Which one of the statements is not true
   1. Forecasting errors show how well the forecasts fit the actual values
   2. Forecasting errors indicate which one of several forecasting methods is better
   3. Smaller forecasting errors reduce the uncertainty for future forecasts
   4. Smaller forecasting errors indicate the probability that future forecasts will be eliminated

The correct answer is d.

Support comment:

1. Which one of the following is not an error statistic
   1. ME
   2. MSE
   3. MAD
   4. RMS
   5. VAR
   6. MPE

The correct answer is e.

Support comment:

1. For a time series with 20 observations, to calculate the prediction interval we should use the z-values
   1. True
   2. False

The correct answer is b.

Support comment: For shorter time series use the t-value.

1. Standard error of the estimate indicates
   1. How forecasts are scattered around the mean
   2. How forecasts are scattered around actual values
   3. How forecasts are scattered around the future mean

The correct answer is b.

Support comment:

1. Which one of the following components of a seasonal time series is not correct
   1. Trend
   2. Seasonal
   3. Moving average
   4. Cyclical
   5. Irregular

The correct answer is c.

Support comment:

1. A seasonal time series cannot be expressed in one of the time units below
   1. Days
   2. Weeks
   3. Months
   4. Years

The correct answer is d.

Support comment: