

MCQ TIME SERIES

MCQ 16.1

An orderly set of data arranged in accordance with their time of occurrence is called:

- (a) Arithmetic series (b) Harmonic series (c) Geometric series **(d) Time series**

MCQ 16.2

A time series consists of:

- (a) Short-term variations (b) Long-term variations (c) Irregular variations **(d) All of the above**

MCQ 16.3

The graph of time series is called:

- (a) Histogram (b) Straight line **(c) Histogram** (d) Ogive

MCQ 16.4

Secular trend can be measured by:

- (a) Two methods (b) Three methods **(c) Four methods** (d) Five methods

MCQ 16.5

The secular trend is measured by the method of semi-averages when:

- (a) Time series based on yearly values **(b) Trend is linear**
(c) Time series consists of even number of values (d) None of them

MCQ 16.6

Increase in the number of patients in the hospital due to heat stroke is:

- (a) Secular trend (b) Irregular variation **(c) Seasonal variation** (d) Cyclical variation

MCQ 16.7

The systematic components of time series which follow regular pattern of variations are called:

- (a) Signal** (b) Noise (c) Additive model (d) Multiplicative model

MCQ 16.8

The unsystematic sequence which follows irregular pattern of variations is called:

- (a) Noise** (b) Signal (c) Linear (d) Non-linear

MCQ 16.9

In time series seasonal variations can occur within a period of:

- (a) Four years (b) Three years **(c) One year** (d) Nine years

MCQ 16.10

Wheat crops badly damaged on account of rains is:

- (a) Cyclical movement **(b) Random movement** (c) Secular trend (d) Seasonal movement

MCQ 16.11

The method of moving average is used to find the:

- (a) Secular trend** (b) Seasonal variation (c) Cyclical variation (d) Irregular variation

MCQ 16.12

A complete cycle consists of a period of:

- (a) Prosperity and depression (b) Prosperity and recovery
(c) Prosperity and recession (d) Recession and recovery

MCQ 16.13

A complete cycle passes through:

- (a) Two stages (b) Three stages **(c) Four stages** (d) Difficult to tell

MCQ 16.14

Most frequency used mathematical model of a time series is:

- (a) Additive model (b) Mixed model **(c) Multiplicative model** (d) Regression model

MCQ 16.15

A time series consists of:

- (a) No mathematical model (b) One mathematical model
(c) Two mathematical models **(d) Three mathematical models**

MCQ 16.16

In a straight line equation $Y = a + bX$; a is the:

- (a) X-intercept (b) Slope **(c) Y-intercept** (d) None of them

MCQ 16.17

In a straight line equation $Y = a + bX$; b is the:

- (a) Y-intercept **(b) Slope** (c) X-intercept (d) Trend

MCQ 16.18

Value of **b** in the trend line $Y = a + bX$ is:

- (a) Always negative (b) Always positive (c) Always zero **(d) Both negative and positive**

MCQ 16.19

In semi averages method, we divide the data into:

- (a) Two parts **(b) Two equal parts** (c) Three parts (d) Difficult to tell

MCQ 16.20

The sum of squares of residuals is denoted by:

- (a) $Y - \hat{Y} = e$ (b) $\sum (Y - \hat{Y}) = \sum e$ (c) $(Y - \hat{Y})^2 = e^2$ **(d) $\sum (Y - \hat{Y})^2 = \sum e^2$**

MCQ 16.21

In fitting a straight line, the value of slope **b** remain unchanged with the change of:

- (a) Scale **(b) Origin** (c) Both (a) and (b) (d) Neither (a) and (b)

MCQ 16.22

If a straight line is fitted to the time series, then:

- (a) $\sum Y = \sum \hat{Y}$** (b) $\sum Y < \sum \hat{Y}$ (c) $\sum Y > \sum \hat{Y}$ (d) $\sum (Y - \hat{Y})^2$

MCQ 16.23

Moving average method is used for measurement of trend when:

- (a) Trend is linear** (b) Trend is non linear (c) Trend is curvilinear (d) None of them

MCQ 16.24

When the trend is of exponential type, the moving averages are to be computed by using:

- (a) Arithmetic mean **(b) Geometric mean** (c) Harmonic mean (d) Weighted mean

MCQ 16.25

The long term trend of a time series graph appears to be:

- (a) Straight-line (b) Upward (c) Downward **(d) Parabolic curve or third degree curve**

MCQ 16.26

Indicate which of the following an example of seasonal variations is:

- (a) Death rate decreased due to advance in science
(b) The sale of air condition increases during summer
(c) Recovery in business (d) Sudden causes by wars

MCQ 16.27

The most commonly used mathematical method for measuring the trend is:

- (a) Moving average method (b) Semi average method
(c) Method of least squares (d) None of them

MCQ 16.28

A trend is the better fitted trend for which the sum of squares of residuals is:

- (a) Maximum **(b) Minimum** (c) Positive (d) Negative

MCQ 16.29

Decomposition of time series is called:

- (a) Historiogram **(b) Analysis of time series** (c) Histogram (d) Detrending

MCQ 16.30

The fire in a factory is an example of:

- (a) Secular trend (b) Seasonal movements (c) Cyclical variations **(d) Irregular variations**

MCQ 16.31

Increased demand of admission in the subject of computer in Pakistan is:

- (a) Secular trend** (b) Cyclical trend (c) Seasonal trend (d) Irregular trend

MCQ 16.32

Damages due to floods, droughts, strikes fires and political disturbances are:

- (a) Trend (b) Seasonal (c) Cyclical **(d) Irregular**

MCQ 16.33

The general pattern of increase or decrease in economics or social phenomena is shown by:

- (a) Seasonal trend (b) Cyclical trend **(c) Secular trend** (d) Irregular trend

MCQ 16.34

In moving average method, we cannot find the trend values of some:

- (a) Middle periods (b) End periods (c) Starting periods **(d) Between extreme periods**

MCQ 16.35

The best fitting trend is one which the sum of squares of residuals is:

- (a) Negative **(b) Least** (c) Zero (d) Maximum

MCQ 16.36

In fitting of a straight line, the value of slope remains unchanged by change of:

- (a) Scale **(b) Origin** (c) Both origin and scale (d) None of them

MCQ 16.37

Depression in business is:

- (a) Secular trend **(b) Cyclical** (c) Seasonal (d) Irregular

MCQ 16.38

In fitting of straight line $\sum(Y - \hat{Y})^2 = 0$

- (a) All the observed Y values lie on the line**
(b) All the Y values are greater than corresponding \hat{Y} values
(c) All the Y values are positive
(d) None of them

MCQ 16.39

Semi-averages method is used for measurement of trend when:

- (a) **Trend is linear** (b) Observed data contains yearly values
 (c) The given time series contains odd number of values (d) None of them

MCQ 16.40

Moving-averages:

- (a) Give the trend in a straight line (b) Measure the seasonal variations
 (c) **Smooth-out the time series** (d) None of them

MCQ 16.41

The rise and fall of a time series over periods longer than one year is called:

- (a) Secular trend (b) Seasonal variation (c) **Cyclical variation** (d) Irregular variation

MCQ 16.42

A time series has:

- (a) Two components (b) Three components (c) **Four components** (d) Five components

MCQ 16.43

The multiplicative time series model is:

- (a) $Y = T + S + C + I$ (b) **$Y = TSCI$** (c) $Y = a + bX$ (d) $Y = a + bX + cX^2$

MCQ 16.44

The additive model of the time series is:

- (a) **$Y = T + S + C + I$** (b) $Y = TSCI$ (c) $Y = a + bX$ (d) $Y = a + bX + cX^2$

MCQ 16.45

The difference between the actual value of the time series and the forecasted value is called:

- (a) **Residual** (b) Sum of variation (c) Sum of squares of residual (d) All of the above

MCQ 16.46

A pattern that is repeated throughout a time series and has a recurrence period of at most one year is called:

- (a) Cyclical variation (b) Irregular variation (c) **Seasonal variation** (d) Long term variation

MCQ 16.47

A business cycle has:

- (a) One stage (b) Two stages (c) Three stages (d) **Four stages**

MCQ 16.48

When the production of a thing is maximum, this stage is called:

- (a) **Boom** (b) Recovery (c) Recession (d) Depression

MCQ 16.49

When the production of a thing is minimum, this stage is called:

- (a) Prosperity (b) Recession (c) Recovery (d) **Depression**

MCQ 16.50

When the production of thing is increasing towards prosperity, this stage is called as:

- (a) Recession (b) **Recovery** (c) Boom (d) Depression

MCQ 16.51

When the production of thing is decreasing, this stage is called:

- (a) **Recession** (b) Recovery (c) Prosperity (d) Depression

MCQ 16.52

The straight line is fitted to the time series when the movements in the time series are:

- (a) Nonlinear **(b) Linear** (c) Irregular (d) Upward

MCQ 16.53

If an annual time series consisting of even number of years is coded, then each coded interval is equal to:

- (a) Half year (b) One year **(c) Both (a) and (b)** (d) Two years

MCQ 16.54

A second degree parabola has:

- (a) One constant (b) Two constant **(c) Three constant** (d) No constant

MCQ 16.55

The normal equations in fitting a second degree parabola are:

- (a) Two **(b) Three** (c) Four (d) Five

MCQ 16.56

The second degree parabola is fitted to the time series when the variations are:

- (a) Linear **(b) Nonlinear** (c) Random (d) Downward

MCQ 16.57

In fitting a second degree parabola, the value of c is not affected with the change of :

- (a) Scale **(b) Origin** (c) Both (a) and (b) (d) Neither (a) and (b)

MCQ 16.58

For odd number of year, formula to code the values of X by taking origin at centre is:

- (a) $X = \text{year} - \text{average of years}$** (b) $X = \text{year} - \text{first year}$
 (c) $X = \text{year} - \text{last year}$ (d) $X = \text{year} - \frac{1}{2} \text{ average of years}$

MCQ 16.59

For even number of years when origin is in the centre and the unit of X being one year, then X can be coded as:

- (a) $X = (\text{year} - \text{average of years})/2$ **(b) $X = \text{year} - \text{average of years}$**
 (c) $X = \text{year} - 0.5 \text{ average of years}$ (d) $X = \text{average of years} - \text{year}$

MCQ 16.60

For even number of years when origin is in the centre and the unit of X being half year, then X can be coded as:

- (a) $X = \text{year} - \text{average of years}$ **(b) $X = 2(\text{year} - \text{average of years})$**
 (c) $X = (\text{year} - \text{average year})/2$ (d) $X = \text{year} - \frac{1}{2} \text{ average of years}$

MCQ 16.61

In semi averages method, if the number of values is odd then we drop:

- (a) First value (b) Last value **(c) Middle value** (d) Middle two values

MCQ 16.62

The trend values in freehand curve method are obtained by:

- (a) Equation of straight line **(b) Graph**
 (c) Second degree parabola (d) All of the above

MCQ 16.63

$\sum X = \sum X^3 = 0$, if origin is:

- (a) At the end of time period (b) Any where
(c) At the middle of time period (d) At the beginning of time period