

CHAPTER WISE

CORRECT THE STATEMENTS WITH ANSWERS

CORRELATION & REGRESSION

1. Correlation coefficient between x and y is 0 indicates that x and y are independent.

Ans. Correlation coefficient between x and y is 0 indicates that x and y have no linear relationship.

2. The value of rank correlation coefficient is always larger than 1.

Ans. The value of rank correlation coefficient always lies between -1 and 1 .

3. If x and y are related by only one regression line making an angle of 45° with the positive X-axis, the variables have no linear relationship.

Ans. If x and y are related by only one regression line making an angle of 45° with the positive X-axis, the variables have perfect positive correlation.

4. Correlation coefficient is the arithmetic mean of the regression coefficients.

Ans. Correlation coefficient is the geometric mean of the regression coefficients.

5. If the correlation coefficient is -1 then the regression lines become distinct parallel lines.

Ans. If the correlation coefficient is -1 then the regression lines coincide with each other.

6. Least square method is used for calculating the correlation coefficient.

Ans. Product moment method is used for calculating the correlation coefficient.

7. If two variables are perfectly correlated then the regression lines become perpendicular to each other.

Ans. If two variables are perfectly correlated then the regression lines coincide with each other.

8. If a line of regression is parallel to the X-axis then the variables are perfectly correlated.

Ans. If a line of regression is parallel to the X-axis then the variables have no linear relationship.

9. If one regression coefficient is negative then the correlation coefficient is either positive or negative.

Ans. If one regression coefficient is negative then the correlation coefficient is definitely negative.

10. Sum of the regression coefficients can not be more than twice of the correlation coefficient.

Ans. Sum of the regression coefficients can not be less than twice of the correlation coefficient.

TIME SERIES ANALYSIS

11. Seasonal variation in a time series is the effect due to such factors which change only after a long time.

Ans. Trend component in a time series is the effect due to such factors which change only after a long time

12. Trend for a business time series can be best fitted by the free hand curve method.

Ans. Trend for a business time series can be best fitted by the moving average method.

13. Terrorist attack in Kashmir region is an example of seasonal variation.

Ans. Terrorist attack in Kashmir region is an example of irregular fluctuation.

14. If a time series is assumed to follow an additive model, the effect due to a component can be eliminated through division.

Ans. If a time series is assumed to follow an additive model, the effect due to a component can be eliminated through subtraction.

15. Method of moving average cannot provide a non-linear trend.

Ans. Method of semi-average cannot provide a non-linear trend.

16. Occurrence of flood in a place during the rainy season every year is irregular fluctuation.

Ans. Occurrence of flood in a place during the rainy season every year is seasonal variation.

17. Moving average method cannot give linear trend.

Ans. Moving average method can give linear as well as non-linear trend.

18. The data on annual sales of refrigerators is free from cyclical fluctuations.

Ans. The data on annual sales of refrigerators is free from seasonal variation.

19. If a time series contains cyclical fluctuation occurring at regular intervals then the best method for measurement of trend is the method of free hand smoothing.

Ans. If a time series contains cyclical fluctuation occurring at regular intervals then the best method for measurement of trend is the method of moving average.

20. A second degree trend can be fitted by the semi-average method.

Ans. A second degree trend can be fitted by the least square method.

INDEX NUMBER

21. Paasche's index number has an upward bias.

Ans. Laspeyre's index number has an upward bias.

22. Paasche's index uses base year's quantity.

Ans. Laspeyre's index uses base year's quantity.

23. According to TRT, $P_{01} \times Q_{01} = 1$

Ans. According to TRT, $P_{01} \times P_{10} = 1$

24. An Index number formula satisfies FRT means

$$P_{01} \times Q_{01} = 1$$

Ans. An Index number formula satisfies FRT

means
$$P_{01} \times Q_{01} = \frac{\sum p_1 q_1}{\sum p_0 q_0}$$

25. An ideal base year should be a distant past year.

Ans. An ideal base year should be a past year free from economic abnormalities.

26. Arithmetic mean is the most suitable average for computation of index numbers.

Ans. Geometric mean is the most suitable average for computation of index numbers.

27. Fisher's index is always smaller than both Laspeyre's and Paasche's index.

Ans. Fisher's index is always lies between Laspeyre's and Paasche's index.

28. Laspeyre's index under estimates the relative change.

Ans. Laspeyre's index over estimates the relative change.

29. Fisher's ideal index is the arithmetic average of Laspeyre's and Paasche's index.

Ans. Fisher's ideal index is the geometric mean of Laspeyre's and Paasche's index.

30. The unit of a price index number is same as the unit in which price is expressed.

Ans. Index number is a pure number free from units.

SAMPLING TECHNIQUES

31. As compared to complete enumeration, sampling involves a greater cost.

Ans. As compared to complete enumeration, sampling involves a smaller cost.

32. Census can provide the precision of the estimate.

Ans. Sampling can provide the precision of the estimate

33. Census provides a wider scope of study in comparison to sampling.

Ans. Sampling provides a wider scope of study in comparison to Census.

34. Sample mean is an example of parameter.

Ans. Population mean is an example of parameter.

35. In order to draw a 10% sample from a population of one lakh units, the best method is Lottery method.

Ans. In order to draw a 10% sample from a population of one lakh units, the best method is to use a random number table.

36. Effective ness of a poisonous drug can be studied by adopting the census method.

Ans. Effective ness of a poisonous drug can be studied by adopting the sampling method.

37. In simple random sampling, each sampling unit is assigned with different probabilities of selection.

Ans. In simple random sampling, each sampling unit is assigned with equal probability of selection.

38. Sampling requires a larger man power as compared to census.

Ans. Sampling requires a smaller man power as compared to census.

39. Sample standard deviation is an unbiased estimator of the population variance in simple random sampling.

Ans. Sample mean square is an unbiased estimator of the population mean square in simple random sampling.

40. Sampling contains only sampling error.

Ans. Sampling contains sampling error as well as non-sampling error.

THEORETICAL DISTRIBUTIONS

41. Binomial distribution cannot be symmetrical.
Ans. Binomial distribution is symmetrical whenever $p = \frac{1}{2}$.
42. The area under a standard normal curve for $Z \geq 0$ is 1.
Ans. The area under a standard normal curve for $Z \geq 0$ is 0.5.
43. If mean of a Poisson distribution is 7 then it has one modal value.
Ans. If mean of a Poisson distribution is 7 then it has two modal values, 6 and 7.
44. Mean of a binomial distribution is 4.5 and the number of trials is 18 then it has 2 modes.
Ans. Mean of a binomial distribution is 4.5 and the number of trials is 18 then it has only 1 mode i.e 4.
45. Mean of a Poisson distribution is always larger than the variance.
Ans. Mean of a Poisson distribution is always equal to the variance.

46. The standard deviation of a standard normal variate is 0.
Ans. The standard deviation of a standard normal variate is 1.
47. If $p < \frac{1}{2}$, the Binomial distribution becomes negatively skewed.
Ans. If $p < \frac{1}{2}$, the Binomial distribution becomes positively skewed.
48. Normal distribution has one parameter.
Ans. Normal distribution has two parameters namely μ and σ .
49. A binomial distribution becomes symmetrical whenever, $pq = \frac{1}{4}$
Ans. A binomial distribution becomes symmetrical whenever, $pq = \frac{1}{4}$.
50. If the variance of a Poisson distribution is an integer then it has only one mode.
Ans. If the variance of a Poisson distribution is an integer then it has two mode.

CHAPTER WISE

FILL IN THE BLANKS WITH ANSWERS

CORRELATION & REGRESSION

1. Two variables are related by only one equation $50x + 39y = 2765$. Coefficient of correlation between them is _____
Ans. Two variables are related by only one equation $50x + 39y = 2765$. Coefficient of correlation between them is -1 .
2. Correlation between habit of smoking and chances of lungs cancer can be best studied through _____ method.
Ans. Correlation between habit of smoking and chances of lungs cancer can be best studied through Rank correlation method.
3. The points of a scatter diagram lie on a straight line making an obtuse angle with the positive x-axis. The variables are _____ correlated.

- Ans.** The points of a scatter diagram lie on a straight line making an obtuse angle with the positive x-axis. The variables are negatively correlated.
4. As per the method of least squares, the sum of deviations parallel to the dependent axis should be _____
Ans. As per the method of least squares, the sum of deviations parallel to the dependent axis should be 0.
5. If a line of regression is parallel to the y-axis then the other line of regression will be _____
Ans. If a line of regression is parallel to the y-axis then the other line of regression will be parallel to the x-axis.
6. Determination of correlation between Yearly number of live births and yearly production of electricity is called _____ correlation.
Ans. Determination of correlation between Yearly number of live births and yearly production of electricity is called spurious correlation.