

TOPICS : Correlation & Regression, Index Number

1. Covariance measures _____ variations of two variables.
(a) Joint (b) single (c) both (d) None
2. The correlation between 'Sale of cold drinks and day temperature' is correlated.
(a) positively (b) negatively (c) zero (d) None of these
3. As 'r' increases numerically from 0 to 1, the angle between the regression lines
(a) increases from 0° to 90° (b) diminishes form 90° to 0°
(c) increases from 0° to 180° (d) both (a) and (c) above
4. Regression lines are passes through the _____ points
(a) Mean (b) standard deviation (c) Both (a) & (b) (d) None
5. The value index is equal to
(a) the total sum of the values of a given year multiplied by the sum of the values of the base year.
(b) the total sum of the values of a given year divided by the sum of the values of the base year.
(c) the total sum of the values of a given year plus by the sum of the values of the base year.
(d) None of these
6. A worker earned Rs. 900 per month in 1990 the cost of living index increased by 70% between 1990 and 1993. How much extra income should the worker have earned in 1993, so that he could buy the same quantity as in 1990 ?
(a) Rs. 7460 (b) Rs. 9460 (c) Rs.7560 (d) Rs. 8464
7. The test of shifting the base is called
(a) time reversal test (b) unit test (c) circular test (d) None
8. The cost of living index (C.L.I) is always
(a) Weighted index (b) Price index
(c) Quantity index (d) None of these
9. The difference between the observed value and the estimated value in regression analysis is known as :
(a) deviation (b) residue (c) error (d) Either (b) or (c)
10. Karl Pearson correlation coefficient may be defined as the ratio of
(a) the product of standard deviations of the two variables to the covariance between them.
(b) the covariance between the variables to the product of the variances of them.
(c) the covariance between the variables to the product of their standard deviations.
(d) Either (b) or (c).
11. A small value of r indicates only a _____ linear type of relationship between the variables.
(a) good (b) poor (c) maximum (d) highest
12. If x and y satisfy the relationship $y = -5 + 7x$, the value of r is
(a) 0 (b) - 1 (c) + 1 (d) none

13. Given below are the data on prices of some consumer goods and the weights attached to the various items Compute price index number for the year 1985 (Base 1984 = 100)

| Items | Unit | 1984 | 1985 | Weight |
|-------|-------|------|-------|--------|
| Wheat | Kg. | 0.50 | 0.75 | 2 |
| Milk | Litre | 0.60 | 0.75 | 5 |
| Egg | Dozen | 2.00 | 2.40 | 4 |
| Sugar | Kg. | 1.80 | 2.10 | 8 |
| Shoes | Pair | 8.00 | 10.00 | 1 |

Then weighted average of price Relative Index is :

- (a) 125.43 (b) 123.3 (c) 124.53 (d) 124.52
14. Test whether the index number due to Walsh give by: $I = \frac{\sum P_1 \sqrt{Q_0 Q_1}}{\sum P_0 \sqrt{Q_0 Q_1}} \times 100$ Satisfies is:
- (a) Time reversal Test. (b) Factor reversal Test.
(c) Circular Test. (d) None of these.
15. The price level of a country in a certain year has increased 25% over the base period. The index number is
- (a) 25 (b) 125 (c) 225 (d) 2500
16. The consumer price Index for April 1985 was 125. The food price index was 120 and other items index was 135. The percentage of the food weight of the index is
- (a) 66.67 (b) 68.28 (c) 90.25 (d) None of these
17. If slopes at two regression lines are equal then r is equal to
- (a) 1 (b) ± 1 (c) 0 (d) none
18. The coefficient of determination is given by :

- (a) $\frac{\text{Unexplained Variance}}{\text{Total Variance}}$ (b) $\frac{\text{Explained Variance}}{\text{Unexplained Variance}}$
- (c) $\frac{\text{Explained Variance}}{\text{Total Variance}}$ (d) $\frac{\text{Unexplained Variance}}{\text{Explained Variance}}$

19. When $r = 0$ then $\text{cov}(x,y)$ is equal to
- (a) + 1 (b) - 1 (c) 0 (d) none
20. When the variables are not independent, the correlation coefficient may be zero
- (a) true (b) false (c) both (d) none
21. r , b_{xy} , b_{yx} all have _____ sign.
- (a) different (b) same (c) both (d) none
22. The Spearman's rank correlation coefficient for the following data is _____.

| | | | | | | |
|------|---|---|---|---|---|---|
| R1 : | 6 | 5 | 4 | 3 | 2 | 1 |
| R2 : | 1 | 2 | 3 | 4 | 5 | 6 |

- (a) 1 (b) - 1 (c) 0.5 (d) - 0.5
23. From the following data

| Commodities | Base Price 1964 | Current Year 1968 |
|-------------|--------------------|----------------------|
| Rice | 36 | 54 |
| Pulse | 30 | 50 |
| Fish | 130 | 155 |
| Potato | 40 | 35 |
| Oil | 110 | 110 |

The index number by unweighted methods :

- (a) 116.8 (b) 117.25 (c) 115.35 (d) 119.37

24. The Bowley's Price index number is represented in terms of :
- A.M. of Laspeyre's and Paasche's Price index number.
 - G.M. of Laspeyre's and Paasche's Price index number.
 - A.M. of Laspeyre's and Walsh's price index number.
 - None of these
25. The Factor Reversal Test is as represented symbolically is :
- $P_{01} \times Q_{01} = \frac{\sum P_1 Q_1}{\sum P_0 Q_0}$
 - $I_{01} \times I_{10}$
 - $\frac{\sum P_0 Q_0}{\sum P_1 Q_1}$
 - $\sqrt{\frac{\sum P_1 Q_1}{\sum P_0 Q_0} \times \frac{\sum P_0 Q_1}{\sum Q_{10} P_0}}$
26. In the year 2010 the monthly salary was Rs. 24,000. The consumer price index number was 140 in the year 2010 which rises to 224 in the year 2016. If he has to be rightly compensated what additional monthly salary to be paid to him.
- Rs. 14,400
 - Rs. 38,400
 - Rs. 7,200
 - None of these
27. If high values of one tend to low values of the other, they are said to be
- negatively correlated
 - inversely correlated
 - both
 - none
28. If $\text{cov}(x, y) = 25$, what restrictions should be put for the standard deviations of x and y ?
- the sum of the standard deviations should be less than 25.
 - no restriction.
 - the product of the standard deviations should be more than 25.
 - the product of the standard deviations should be less than 25.
29. Simple correlation is called
- linear correlation
 - nonlinear correlation
 - both
 - none
30. If the correlation coefficient between two variables X and Y is 0.5 and the regression coefficient of X on Y is 0.2, then the regression coefficient of Y on X is :
- 0.7
 - ± 0.5
 - 1.25
 - None of these
31. For a $p \times q$ bivariate frequency table, the maximum number of marginal distribution is
- p
 - $p + q$
 - 1
 - 2
32. If the value of correlation coefficient is positive, then the points in a scatter diagram tend to cluster.
- From lower left corner to upper right corner
 - From lower left corner to lower right corner
 - From lower right corner to upper left corner
 - From lower right corner to upper right corner
33. If there is a perfect disagreement between the marks in Geography and Statistics, then what would be the value of rank correlation coefficient ?
- Any value
 - Only 1
 - Only -1
 - (b) or (c)
34. If $y = a + bx$, then what is the coefficient of correlation between x and y ?
- 1
 - 1
 - 1 or -1 according as $b > 0$ or $b < 0$
 - None of these
35. For 10 pairs of observations, No. of concurrent deviations was found to be 4. What is the value of the coefficient of concurrent deviation ?
- $\sqrt{0.2}$
 - $-\sqrt{0.2}$
 - 1/3
 - 1/3
36. If $y = 3x + 4$ is the regression line of y on x and the arithmetic mean of x is -1, what is the arithmetic mean of y ?
- 1
 - 1
 - 7
 - none of these
37. If the regression line of y on x and of x on y are given by $2x + 3y = -1$ and $5x + 6y = -1$ then the arithmetic means of x and y are given by
- (1, -1)
 - (-1, 1)
 - (-1, -1)
 - (2,3)
38. If the sum of squares of difference of ranks, given by two judges A and B, of 8 students in 21, what is the value of rank correlation coefficient ?
- 0.7
 - 0.65
 - 0.75
 - 0.8

39. If the coefficient of correlation between two variables is 0.7 then the percentage of variation unaccounted for is
 (a) 70% (b) 30% (c) 51% (d) 49%
40. What is the quickest method to find correlation between two variables ?
 (a) Scatter diagram (b) Method of concurrent deviation
 (c) Method of rank correlation (d) Method of product moment correlation
41. Simple aggregate of quantities is a type of
 (a) Quantity control (b) Quantity indices (c) both (d) none
42. Shifted price Index = $\frac{\text{Original Price} \times 100}{\text{Price Index of the year on which it has to be shifted}}$
 (a) True (b) false (c) both (d) none
43. _____ satisfies circular test
 (a) G.M. of price relatives or the weighted aggregate with fixed weights
 (b) A.M. of price relatives or the weighted aggregate with fixed weights
 (c) H.M. of price relatives or the weighted aggregate with fixed weights
 (d) none
44. Laspeyre's method and Paasche's method do not satisfy
 (a) Unit Test (b) Time Reversal Test (c) Factor Reversal test (d) b & c
45. Theoretically, G.M. is the best average in the construction of index numbers but in practice, mostly the A.M. is used
 (a) false (b) true (c) both (d) none
46. _____ is particularly suitable for the construction of index numbers.
 (a) H.M. (b) A.M. (c) G.M. (d) none
47. The _____ of group indices given the General Index.
 (a) H.M. (b) G.M. (c) A.M. (d) none
48. Index numbers are used in
 (a) Economics (b) Statistics (c) Both (a) & (b) (d) None
49. Purchasing power of money is
 (a) Reciprocal of price index number (b) Equal to price index number
 (c) Unequal to price index number (d) None of these
50. _____ is a point of reference in comparing various data describing individual behavior.
 (a) Sample (b) Base period (c) Estimation (d) none