BUSINESS MATHEMATICS AND STATISTICS - 17UEC3A3

K1 Level

Unit - I

1. I stands for_____.

a. Simple Interest b. Compound Interest c. Rate of interest d. No.of.years

2. C.I. stands for _____.

a***. Compound Interest*** b. Simple Interest c. Rate Of Interest d. No.of.years

3. The Lender's are also known as____

a***. Creditor's*** b. Debtor's c. Buyer's d. None of the above

4. The borrowers are also known as _____.

a. ***Debtor's*** b. Creditor's c. Both a & b d. None of the above

5. The simple interest on Rs 5,000 at 10% for 3 years is _____.

a.500 b.1000 ***c.1500*** d.2000.

6. The compound interest for Rs 20000 for 3 years at 10 % is _____.

a.2500 b.2200 ***c.6000*** d.2500

7. The simple interest for Rs 10000 for 2 years at 10% is _____.

a.200 b.3000 c.4000 d.***2000***

8. Under compound interest the formula for A is given by _____.

a.A=P(1+ni). b.A=P(1+i) c.A=Pnr/100 **d.$A=P(1+i)^n$**

9. In calculation of interest 'n' stands for _____.

a. Rate of interset b. Amount c. Principal ***d. No.of.years***

10. The formula for finding the compound interest is _____.

a. A=P(1+ni). b. A=P(1+i). c. A=Pnr/100 ***d.$A=P(1+i)^n$***

11. Under simple interest, amount or value at the end is _____.

a.A=P+I. b.A=P(1+i). c.A=Pnr/100. d.A=P(1+i)n.

12. Under simple interest, the rate of interest is given by _____.

a.R = 100r-(100-nr). b.***r = 100 I/Pn***. c.Anr/100. d.A=P(1+i)n.

13. Principal (or) Present Value is denoted by _____.

a. A b. n c. ***P*** d. None of the above

14. Compound Interest is always _____ the Simple Interest.

a. Lesser than b. Equal to c***. Greater than*** d. None of the above

15. Simple interest will be the income for_____.

a.***lender.*** b.borrower. c.both . d.neither lender nor borrower

16. The simple interest on Rs 1,000 at 10% for 3 years is _____.

a.500 b.1000 ***c.300*** d.2000.

17. The compound interest for Rs 2000 for 3 years at 10 % is _____.

a.2500 b.2200 ***c.600*** d.2500

18. The simple interest for Rs 20000 for 2 years at 10% is _____.

a.200 b.3000 c.***4000*** d.2000

19. When difference between compound and simple interest for three years is Rs. 122 at 5% rate per annum, the principal is _____

a.Rs. 24400 b. Rs. 14400 c. Rs. 18000 ***d. Rs. 16000***

20. f at same rate of interest, in 2 years, the simple interest is Rs. 40 and compound interest is Rs. 41, then what is the principal?

a. Rs. 500 b. **Rs. 400** c. Rs. 800 d. Rs. 820

Unit - II

1.The matrix is an arrangement of numbers in_____ .

a. ***m rows & n columns*** b. n rows & m columns c. both a & b d. none of the above.

2. Zero matrix is also called_____.

a.Diagonal matrix b.Scalar matrix c.Unit matrix d.***Null matrix***

3. The rank of the given matrix $\begin{pmatrix} 1 & 2 & 5 \end{pmatrix}$ is_____ .

0 0 0

3 −4 9

a.1 b.***2*** c.3 d.0

4. The given matrix is $\begin{Bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \end{Bmatrix}$ _____.

a. a scalar matrix. b. a unit matrix. c. a square matrix ***d. a rectangular matrix.***

5. Zero matrix is otherwise known as_____.

a.***null matrix***. b.square matrix. c.unit matrix. d.triangular matrix.

6. When the number of rows and the number of columns of a matrix are equal, the matrix is_____.

a.square matrix b.row matrix c.column matrix d.none of these

7. If all the elements of a matrix are zeros, then the matrix is a_____.

a.unit matrix b.square matrix c.***zero matrix*** d.none of these.

8. A diagonal matrix in which all the diagonal elements are equal is a_____.

a.scalar matrix b.column matrix c.unit matrix d.None of these

9. If any two rows and columns of a determinant are identical, the value of the determinant is_____.

a.1. b.***0*** c.-1 d.Unaltered

10. (3 8 9 -2) is a row matrix of order_____.

a.4x4 b.***1x4*** c.1x1 d.4x1

11. If A is a singular matrix |A| is _____.

a.1 *b.0* c. any positive value. d. any negative value.

12. If A, B are two matrices and K is a scalar then _____.

a. K(A+B) ≠KA+KB **b. *K(A+B)=KA+KB.***

c. K(A+B)<KA+KB. d. K(A+B)>KA+KB. Answer: B

13. If A,B and C are matrices the associative property is_____.

a.(AB)C<A(BC). b. (AB)C>A(BC). c. (AB)C≠A(BC). d. (***AB)C=A(BC***).

14. If Aand B are matrices of same order then _____.

a. A+B=B+A. b. A+B≠B+A. c. A+B<B+A. d. A+B>B+A.

15. If A,B and C are matrices of the same order then _____.

a.(A+B)+C=A+(B+C). b.(A+B)+C ≠ A+(B+C). c.(A+B)+C> A+(B+C). d.(A+B)+C < A+(B+C).

16. The Value of determinant of $\begin{vmatrix} 3 & 6 \\ 4 & -1 \end{vmatrix}$ is_____

a. ***-27.*** b. 27. c. 24. d. -24.

17. If the number of rows of a matrix is greater than the number of columns then the matrix is called as _____

a.a row matrix. b.a column matrix. c.***a rectangular matrix***. d.a square matrix.

18. Inverse of a matrix exists if and only if _____.

a.***determinant value exists***. b.determinant value is zero.

c.determinant value is one. d.determinant value is negative.

19. A square matrix A is an orthogonal matrix x, if _____.

a.AA-1=I . b.***AA-1=I***. c.A=A-1 . d.A=A-1.

20. Cramer's Rule is also known as _____.

a. Inverse Matrix Method b. Matrix Method

c. Determinant Method d. Inverse Method

Unit - III

1. Method of complete enumeration is applicable for_____.

a. Knowing the production b. Knowing the quantum of export and import

c. Knowing the population ***d. All of above.***

2. Which of the following example does not constitute an infinite population?

a. Population consisting of odd numbers.

b. Population of weights of newly born babies.

c. Population of heights of 15 year old children.

d. Population of head and tails in tossing a coin successfully.

3. A study based on complete enumeration is known as_____.

a. Sample survey. b. Pilot survey. ***c. Census survey*** d. None of above.

4. Statistical results are_____.

a. Absolutely correct. b. Not true c. *True on average* d. Universally true

5. Statistics can be considered as _____.

a. An art. b. A science. c. Neither an art not science ***d. Both art and science.***

6. Sources of secondary data are_____.

a. Published sources b. Unpublished sources

c. Neither published nor unpublished sources ***d. Both published and unpublished sources.***

7. The data given as 5, 7, 12, 17, 79, 84, 91 will be called as_____.

a. A continuous series. b. A discrete series ***c. An individual series.*** d. Time series.

8. Individual data is another wise called as _____.

a. ***Raw data*** b. Discrete data. c. Continuous data. d. Primary data

9. Extreme value have no effect on_____

a. Average. b. ***Median***. c. Geometric mean. d. Harmonic mean.

10. What percentage of values is greater the 3rd quartile?

a. 75%. b. 50%. c. ***25%***. d. 0%.

11.The median of the variant values 11, 7, 6, 9, 12, 15, 19 is_____.

a.9. b. 12. c. 15. d. ***11.***

12. The number of partition values in case of quartiles is_____.

a. 4. b. ***3***. c. 2. d. 1.

13.Which of the following is a unit less measure of dispersion?

a. Standard deviation. b. Mean deviation. c. ***Coefficient of variation***. d. Range.

14. Which one of the given measures of dispersion is considered best?

a. ***Standard deviation***. b. Range. c. Variance. d. Coefficient of variation.

15. Out of all measures of dispersion, the easiest one to calculate is_____.

a. Standard deviation. b***. Range***. c. Variance. d. Quartile deviation.

16. Mean deviation is Minimum when deviations are taken from_____.

a. Mean. ***b. Median***. c. Mode. d. Zero

17. It is one of the measures of central tendency_____.

a. Mean deviation. b. Standard deviation. c. ***Median.*** d. Correlation.

18. The value in a series occurs most frequently is called_____.

a. Mean. b. Median. ***c. Mode.*** d. Harmonic mean.

19. Which one of the following is not a measure of dispersion ?

a. Range. b. Standard deviation. c. Mean deviation. ***d. Geometric mean***.

20. Range of 8, 12, 5, 15 is _____.

a. 2. b. 5. c. ***10.*** d. 15.

Unit - IV

1. The idea of product movement correlation was given by_____.

a. R.A. Fisher. b. Sir Frances Galeton. c. ***Karl Pearson***. d. Spearman.

2. If ρ is the simple correlation, the quantity $(1-\rho^2)$ is called _____.

a. Coefficient of determination. ***b. Coefficient of non determination***.

c. Coefficient of alienation. d. None of the above.

3. The value of correlation ratio varies from _____.

a. ***-1 to 1***. b. -1 to 0. c. 0 to 1. d. 0 to ∞.

4. If each group consists of one observation only, the value of correlation ratio is_____.

a. 0. b***. 1.*** c. Between 0 and 1. d. Between -1 and 1.

5. The average of two regression coefficients is always greater than or equal to the correlation coefficient is called_____.

a. Fundamental property. b. Signature property. c. Magnitude property. d. ***Mean property***.

6. The nature of correlation between two variables is known from _____.

a. Bar diagram. b. Pie diagram. c. Pictogram. d. ***Scatter diagram***

7. The co-efficient of correlation is not affected by _____.

a. Change of origin. b. Change of scale. c. ***Both origin and scale***. d. None.

8. If one of the regression coefficient is negative, the other _____.

a. Must be positive. b. ***Must be negative***. c. May be positive or negative. d. Non-negative.

9. Rank correlation method was developed by _____.

a. Karl Pearson. b. R.A. Fisher. c. ***Spearman.*** d. Croxten and cowden.

10. Correlation analysis deals with_____.

a.Two attributes. b. Two variables alone. c. ***Variables.*** d. Averages.

11. Correlation between the number of children born and the number of train accident is_____.

a. Positive correction. b. ***Spurious correlation***. c. Negative correlation. d. Rank correlation.

12. If r is called simple correlation coefficient, the quantity r^2 is known as_____.

a. ***Coefficient of determination***. b. Coefficient of non determination.

c. Coefficient of alienation. d. Coefficient of variation.

13. The range of simple correlation coefficient is_____.

a. 0 to ∞. b. -∞ to ∞. c. 0 to 1. *d. -1 to 1.*

14. The co-efficient of correlation is not affected by _____.

a. Change of origin. b. Change of scale. c. ***Both origin and scale***. d. None.

15. The average of two regression coefficients is always lesser than or equal to the correlation coefficient is called_____.

a. Fundamental property. b. Signature property. c. ***Magnitude property***. d. Mean property**.**

16. The range of simple correlation coefficient is_____.

a. 0 to ∞. b. -∞ to ∞. c. 0 to 1. d***. -1 to 1.***

17. The nature of correlation between two variables is known from _____.

a. Bar diagram. b. Pie diagram. c. Pictogram. d. ***Scatter diagram.***

18. If one of the regression coefficient is negative, the other _____.

a. Must be positive. b. ***Must be negative.*** c. May be positive or negative. d. Non-negative.

19. To make a prediction for a new value of the predictor variable based on a correlation between two score values, you

a. multiply the Pearson correlation coefficient by the new predictor value and add the value of the y-intercept.

b. multiply the new predictor value by the slope of the regression line and add the value of the y-intercept.

c. divide the new predictor value by the slope of the correlation line and add the value of the y-intercept.

d. ***add the new predictor value to the slope of the correlation line and divide by the value of the y-intercept***.

20. Which of the following makes no sense?

a) p < .10 b) r = .5 c) ***p = - .05*** d) r = - .95

Unit - V

1.Index numbers are also known as _____.

a. Economic barometers. b. Signs and guide posts. c. ***Both (a) and (b).*** d. Neither (a) nor (b).

2.Index number is a_____.

a. Measure of relative changes. b. A special type of an average.

c. A percentage relative. d. ***All the above***.

3. Most commonly used index number is_____.

a. Diffusion index number. b. Price index number.

c. Value index number. d. ***None of the above.***

4. Base period for an index number should be _____.

a. A year only. b. ***A normal period***. c. A period of distant past. d. None of the above.

5. Laspeyre's index numbers possess _____.

a. Downward bias. b. ***No bias.*** c. Upward bias. d. None of the above.

6. The difference between the index numbers based on n selected items and total number of items is called _____.

a. Formula error. b. ***Sampling error***. c. Homogeneity error. d. None of the above.

7. Sampling error in respect of index numbers can be reduced by_____.

a. Taking a random sample of items. b. Including large number of items.

c. *Both (a) and (b).* d. Neither (a) nor (b).

8. The range of homogeneity error in reference to index numbers is_____.

a. ***0 to 1***. b. 0 to ∞. c. -1 to 1. d. -∞ to ∞.

9. Combining of two index number series having different base periods into one series with common base period is known as _____.

a. Splicing. b. Base shifting. c. Both (1) and (2). d. Neither (1) nor (2).

10. An appropriate method for working out consumer price index is_____.

a. Weighted aggregate expenditure method. b***. Family budget method.***

c. Price relative's method. d. None of the above.

11. Index of industrial production measures the changes in _____.

a. The quantum production. b. The value of products.

c. The demand of industrial goods. d. None of the above.

12. Consumers price index number is constructed for_____.

a. ***A well defined section of people***. b. All people.

c. Factory workers only. d. In a group of peoples.

13.Laspeyre's index formula uses the weights of the_____.

a***. Base year.*** b. Current year.

c. Average of the weights of a number of years. d. To any arbitary chosen year.

14. The weights used in Pasches formula belong to_____.

a. The base period. b. ***The given period***. c. To any arbitary chosen period.

d. Average of the weights of a number of periods.

15. Fishers ideal formula does not satisfy _____.

a. Time reversal test. b. ***Circular test***. c. Factor reversal test. d. Unit test.

16. Factor reversal test permits the interchange of _____.

a. Base periods. b. Price and quantity. c. ***Weights.*** d. None of the above.

17. The best average to calculate index numbers is_____.

a. A.M . b. ***G.M.*** c. H.M. d. None.

18. If a frequency distribution is positively skewed, the mean of the distribution is_____.

a. Greater than the mode. b. Less than the mode.

c. Equal to mode. d. Less than the mean.

19. When the coefficient of skewness is zero, the frequency curve is _____.

a. U shaped. b. J shaped. c. ***Bell shaped***. d. None of the above.

20. In paache's Index Number priority is given to the price of_____.

a. Current year. b. Base year. c. Future year. d. ***None of the above***.

BUSINESS MATHEMATICS AND STATISTICS - 17UEC3A3

K2 Level

Unit - I

1. **What is simple interest?**
   Simple interest is a quick and easy method of calculating the interest charge on a loan. Simple interest is determined by multiplying the daily interest rate by the principal by the number of days that elapse between payments.

2. **What is compound interest?**

   Compound interest is calculated by multiplying the initial principal amount by one plus the annual interest rate raised to the number of compound periods minus one. The total initial amount of the loan is then subtracted from the resulting value.

3. **What is the difference between compound and simple interest?**

   Simple interest is based on the principal amount of a loan or deposit, whilecompound interest is based on the principal amount and the interest that accumulates on it in every period. Since simple interest is calculated only on the principal amount of a loan or deposit, it's easier to determine than compound interest.

4. **What is the formula for calculating depreciation?**
   $A= P (1-r/100)^n$

5. **Find the principal amount invested if the difference between Compound Interest and Simple Interest obtained for 3 years at rate of interest of 25% is Rs. 320?**

   Rs. 1575.38

6. **What is Principal?**

   The money borrowed or lent out for a certain period is called the principal or the sum.

7. **What is simple interest?**

   Interest is the extra money that the borrower pays for using the lender's money.

8. **Find the simple interest on Rs. 68,000 at 16(2/3)% per annum for a period of 9 months?**

   Rs. 8500

9. **Give example for real time loan?**

   Credit Cards

10. **What is amount?**

The sum of the principal and interest is called the **Amount**

Unit - II

1. Define matrix

A *matrix* is a collection of numbers arranged into a fixed number of rows and columns. Usually the numbers are real numbers.

2. What is order of a matrix?

The number of rows and columns that a matrix has is called its order or its dimension.

3. What is square matrix?

A matrix is said to be square if the number of rows is equal to the number of columns.

4. What is row matrix?

A matrix is said to be a column matrix if it has only one row.

5. What is column matrix?

A matrix is said to be a column matrix if it has only one column.

6. What is null matrix?

A matrix is said to be a null matrix if all the elements are zero.

7. What is a diagonal matrix?

A square matrix is said to be diagonal if at least one element of principal diagonal is non-zero and all the other elements are zero.

8. What is scalar matrix?

A diagonal matrix is said to be scalar if all of its diagonal elements are the same.

9. What is unit matrix?

A square matrix is said to be diagonal if at least one element of principal diagonal is one

10. What is sub-matrix?

A sub-matrix of A is a matrix formed by selecting from A: a subset of the rows. and forming a new matrix by using those entries, in the same relative positions, that appear in both the rows and columns of those selected.

Unit - III

1. **Define statistics**

   Statistics are numerical statement of facts in department of enquiry, placed in relation to each other.

2. **What is Central Tendency?**

   Measures of central tendency, Mean, Median, Mode, etc., indicate the central position of a series. They indicate the general magnitude of the data but fail to reveal all the peculiarities and characteristics of the series.

3. **What is measures of location?**

   Averages are also called measures of location since they enable us to locate the position or place of the distribution in question.

4. **Define Arithmetic Mean**

   The arithmetic mean of a series is the quotient obtained by dividing the sum of the values by the number of items.

5. **Define median**

   Median is the value of the middle most item when all the items are in the order of magnitude.

6. **Mention any two Essential of a Good Average**

   An average represents the statistical data and it is used for purposes of comparison, it must possess the following properties.It must be rigidly defined and not left to the mere estimation of the observer. If the definition is rigid, the computed value of the average obtained by different persons shall be similar.The average must be based upon all values given in the distribution. If the item is not based on all value it might not be representative of the entire group of data.

7. **What is Dispersion?**

   Simplest meaning that can be attached to the word `dispersion' is a lack of uniformity in the sizes or quantities of the items of a group or series.

8. **What is range?**

   Range is a simplest method of studying dispersion. It takes lesser time to compute the `absolute' and `relative' range. Range does not take into account all the values of a series, *i.e.* it considers only the extreme items and middle items are not given any importance.

9. **What is Quartile Deviation?**

   The concept of `Quartile Deviation' does take into account only the values of the `Upper quartile' and the `Lower quartile' . Quartile Deviation is also called `inter-quartile range'. It is a better method when we are interested in knowing the range within which certain proportion of the items fall.

10. **What is Coefficient of Variation?**

Generally, coefficient of variation is used to compare two or more series. If coefficient of variation (C.V.) is more for one series as compared to the other, there will be more variations in that series, lesser stability or consistency in its composition. If coefficient of variation is lesser as compared to other series, it will be more stable, or consistent.

Unit - IV

1. **What is Correlation?**

   A mutual relationship or connection between two or more things

2. **What is positive correlation?**

   Positive correlation is a relationship between two variables in which both variables move in tandem - that is, in the same direction.

3. **What is negative correlation?**

   Negative correlation is a relationship between two variables in which one variable increases as the other decreases, and vice versa.

4. **What is simple correlation?**

   Simple correlation is a measure used to determine the strength and the direction of the relationship between two variables, X and Y. A simple correlation coefficient can range from –1 to 1.

5. **What is partial correlation?**

   Partial correlation measures the degree of association between two random variables, with the effect of a set of controlling random variables removed.

6. **What is multiple correlation?**

   In statistics, the coefficient of multiple correlation is a measure of how well a given variable can be predicted using a linear function of a set of other variables.

7. **What is co-efficient of determination?**

   The coefficient of determination (denoted by R^2) is a key output of regression analysis. ... With linear regression, the coefficient of determination is also equal to the square of the correlation between x and y scores.

8. **What is standard error?**

   A measure of the statistical accuracy of an estimate, equal to the standard deviation of the theoretical distribution of a large population of such estimates.

9. **What is probable error?**

   In statistics, probable error defines the half-range of an interval about a central point for the distribution, such that half of the values from the distribution will lie within the interval and half outside.

10. **What is the other name of product moment correlation?**

    Karl Pearson’s Correlation

Unit - V

1. What is index numbers?

A number showing the variation in a price or value compared with the price or value at a specified earlier time

2. Mention any two uses of index numbers

A number showing the variation in a price or value compared with the price or value at a specified earlier time.

3. What is simple aggregative method?

The method in which sum of prices of all the commodities in the current period is divided by the total prices in the base period is called unweighted aggregate index.

4. What is unit test?

This test requires that an index number formula should be such that it does not affect the value of the index number, even if, the units of the price or quantities quoted are altered.

5. What is cost of living index numbers?

A cost-of-living index is a theoretical price indexthat measures relative cost of living over time or regions. It is an index that measures differences in the price of goods and services, and allows for substitutions with other items as prices vary.

6. What is wholesale price index numbers?

A wholesale price index (WPI) is an index that measures and tracks the changes in the price of goods in the stages before the retail level – that is, goods that are sold in bulk and traded between entities or businesses instead of consumers.

7. State any two limitations of index numbers

They are simply rough indications of *the* relative changes. *The* choice of representative commodities may lead to fallacious conclusions as they are based on samples. There may be errors in the choice of base periods or weights, etc. Comparisons of changes in variables over long periods are not reliable.

8. Mention any two characteristics of index numbers

An index number measures the relative change in price, quantity, value, or some other item of interest from one time period to another. A simple index numbermeasures the relative change in one or more than one variable.

9. What is price index numbers?

A price index (plural: "price indices" or "price indexes") is a normalized average (typically a weighted average) of price relatives for a given class of goods or services in a given region, during a given interval of time

10.What are the methods of construction of index numbers?

Simple Price Index and Weighted Price Index

BUSINESS MATHEMATICS AND STATISTICS - 17UEC3A3

K3 Level

Unit - I

1. Write short note on (a) Simple interest & (b) Compound Interest
2. Find the simple interest on the sum of Rs.6,000 at 10% p.a for 3 years.
3. A certain sum amounts to Rs.4,000 at the end of 5 years at 12% p.a. interest. Find the sum.
4. Find the simple and compound interest on Rs. 20000 for 6 years at 7% p.a.
5. Find the total interest on Rs.420 for 50 days, Rs 325 for 63 days and Rs. 743 for 82 days at 5% p.a

Unit - II

1. Explain the types of matrix
2. Distinguish between Matrices and Determinants
3. Find the value of determinants $\begin{matrix} 3 & 2 & 1 \\ 2 & 3 & 1 \\ 1 & 1 & 1 \end{matrix}$

4.Evaluate $\begin{matrix} 3 & 2 \\ 1 & 5 \end{matrix}$

5. If a = $\begin{matrix} 1 & 4 \\ 2 & 3 \end{matrix}$ and B = $\begin{matrix} 5 & 4 \\ 3 & 4 \end{matrix}$, Find (A+B) (A-B)

Unit - III

1. Explain the functions of Statistics

2.What are the characteristics of statistics

3.For the following observations find Mean, Median, Mode. 12,42,25,35,67,25,35,67,25,56,5,75

4.Calculate Geometric mean

X	10	15	25	40	50
F	4	6	10	7	3

5.For the data given below, calculate standard deviation

40,50,60,70,80,90,100

Unit - IV

1.Explain the types of correlation

2. For the data given below, calculate the rank correlation coefficient,

X	21	36	42	37	25
Y	47	40	37	42	43

3.Calculate the coefficient of correlation by concurrent deviation method

Exports	17	12	25	41	32	51
Imports	12	15	23	32	28	26

4.State the properties of correlation coefficient. What are its limitations?

5. Write short note on Karl pearsons correlation.

Unit - V

1.Explain the characteristics of index numbers.

2.Discuss the methods of construction of index numbers

3.Calculate price index numbers by (a) Unweighted A.M and (b) Unweighted G.M

Item	A	B	C	D	E
Price (1998)	20	35	50	10	5
Price (2001)	22	42	70	10	4

4.State the various types of index numbers

5.State the limitations of index numbers

BUSINESS MATHEMATICS AND STATISTICS – 17UEC3A3

K4 Level

Unit - I

1. A sum of money amounted to Rs.1071 in 6 months and Rs. 1106 in 16 months. Calculate the rate of simple interest.
2. Find the present value of Rs.595 due 3 years from now receiving simple interest at 5 % p.a. How much is the true discount given?
3. Siva lends Rs 1200 to vinayaka and a certain sum of money to muruga at the same time at 12% p.a on simple interest. If in 3 years, Siva receives altogether Rs.648 as interest from the two, find the sum borrowed by muruga.
4. A principal amount changes to Rs 1,620 and Rs1,749.60 in compound interest at the end of the first year and second year respectively. Calculte the principal amount and the rate of interest.

5. If the difference between Simple Interest and Compound Interest on a certain sum of money in 2 years at 20 % p.a. is Rs. 800, then find the sum.

Unit - II

1.Find the inverse of A = $\begin{vmatrix} 4 & 0 & 2 \\ 2 & 10 & 2 \\ 3 & 9 & 1 \end{vmatrix}$

2.By using cramers rule solve the following:

3X-Y+2Z=8

X+Y+Z=2

2X+Y-Z=-1

3.Show that the matrix A = $\begin{vmatrix} 2 & -1 & 1 \\ -1 & 2 & -1 \\ 1 & -1 & 2 \end{vmatrix}$

4. Show the adjoint of - $\begin{vmatrix} 4 & -3 & -3 \\ 1 & 0 & 1 \\ 4 & 4 & 3 \end{vmatrix}$

5. Explain the Properties of the Transpose of a matrix.

Unit - III

1. Calculate mean, median and mode from the following data

Class	0-20	20-40	40-60	60-80	80-100
Frequency	41	51	64	38	7

2.Calculate quartile deviation

X	10-20	20-30	30-40	40-50	50-60
F	12	19	5	10	9

3.Find the mean deviation about mean, median and mode:

X	5	15	25	35	45
F	8	12	10	8	3

4.Calculate standard deviation

Heights	60-63	63-66	66-69	69-72	72-75	75-78
Frequency	4	14	59	33	8	2

5. Explain the scope and limitations of Statistics

Unit - IV

1. Distinguish between positive and negative correlation
2. Find the coefficient of correlation for the given data:

X	64	65	66	67	68	69	70
Y	66	67	65	68	70	68	72

3.From the following data, calculate rank correlation

Marks in maths	90	80	70	65	50	40	30	20
Marks in statistics	75	80	70	65	55	60	50	40

4.Ten competitors in a beauty contest were ranked in the below order by two judges. Find the rank correlation coefficient.

Judge 1	1	3	4	5	6	2	8	7	10	9
Judge 2	3	7	2	8	5	10	9	6	4	1

5. Explain product moment correlation.

Unit - V

1. Define index numbers. What are the uses of index numbers?
2. Explain the characteristics of index numbers.
3. Compute (i) Laspeyres (ii) Paasches and (iii) Fishers index numbers.

Item	**Price**		**Quantity**	
	Base year	Current year	Base year	Current year
A	6	10	50	50
B	2	2	100	120
C	4	6	60	60
D	10	12	30	25

4. From the following data, construct an index for 1999 taking 1998 as base:

Commodities	***Price in 1998(Rs.)***	***Price in 1999(Rs.)***
A	50	70
B	40	60
C	80	90
D	110	120
E	20	20

5. From the following data construct the index for 2003 taking 2000 at base year.

Commodity	***Prices in* 2000 (*Rs.*)**	***Prices in* 2003 (*Rs.*)**
A	30	30
B	35	50
C	45	75
D	45	70
E	25	40