

**DEPARTMENT OF BUSINESS ADMINISTRATION
18UBM1A1-MATHEMATICAL TECHNIQUES-I**

**Multiple Choice Question
UNIT I**

1. $[0\ 0\ 0]$ is
 - A. Scaler matrix
 - B. diagonal matrix
 - C. identity matrix
 - D. null matrix**

2. If A is a matrix of order $m \times n$ and B is a matrix of order $n \times p$ then order of AB is
 - A. $p \times m$
 - B. $p \times n$
 - C. $n \times p$
 - D. $m \times p$**

3. Transpose of a square matrix is a
 - A. rectangular matrix
 - B. diagonal matrix**
 - C. square matrix
 - D. scaler matrix

4. If $|A| \neq 0$, then A is
 - A. zero matrix
 - B. singular matrix
 - C. non - singular matrix**
 - D. diagonal matrix

5. If AB exists, then $(AB)^{-1}$ is
 - A. $A^{-1} B^{-1}$
 - B. $B^{-1} A^{-1}$**
 - C. AB
 - D. None of Above

6. Two matrices A and B are multiplied to get AB if

- A. both are rectangular
- B. both have same order
- C. no of columns of A is equal to columns of B**
- D. no of rows of A is equal to no of columns of B

7. Transpose of a column matrix is

- A. zero matrix
- B. diagonal matrix
- C. column matrix
- D. row matrix**

8. Additive inverse of a matrix A is

- A. A
- B. $|A|$
- C. A^2
- D. $\text{adj } A \hat{=} |A|$**

9. In a matrix multiplication for A and B, $(AB)^t$

- A. $A^t B^t$
- B. $B^t A^t$**
- C. $1/AB$
- D. AB

10. For a non-trivial solution $|A|$ is

- A. $|A| > 0$
- B. $|A| < 0$
- C. $|A| = 0$**
- D. $|A| \neq 0$

UNIT-II

1. The word 'statistics' is used as _____.

- a. Singular.
- b. Plural.
- c. Singular and Plural.
- d. None of above.

Answer: C

2. Who stated that statistics is a branch of applied mathematics which specializes in data?

- a. Horace Secrist.
- b. R.A Fisher.
- c. Ya-Lun-Chou.
- d. L.R. Connor.

Answer: B

3. Out of various definitions, given by the following workers, which definition is considered to be more exact?

- a. R .A. Fisher.
- b. A.L. Bowley.
- c. M.G. Kendall.
- d. Cecil H. Meyers.

Answer: A

4. 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.

Answer: D

5. 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.

Answer: C

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

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

Answer: C

7. Statistical results are_____.

- a. Absolutely correct.
- b. Not true.

- c. True on average.
- d. Universally true.

Answer: C

8. Statistics can be considered as _____.

- a. An art.
- b. A science.
- c. Neither an art nor science.
- d. Both art and science.

Answer: D

9. Sources of secondary data are _____.

- a. Published sources.
- b. Unpublished sources.
- c. Neither published nor unpublished sources.
- d. Both published and unpublished sources.

Answer: D

10. Whether classification is done first or tabulation?

- a. Classification follows tabulation.
- b. Classification precedes tabulation.
- c. Both are done simultaneously.
- d. No criterion.

Answer: B

11. A series showing the sets of all distinct values individually with their frequencies is known

as _____.

- a. Grouped frequency distribution.
- b. Simple frequency distribution.
- c. Cumulative frequency distribution.
- d. None of the above.

Answer: B

12. A series showing the sets of all values in classes with their corresponding frequencies is

known as _____.

- a. Grouped frequency distribution.
- b. Simple frequency distribution.
- c. Cumulative frequency distribution.
- d. None of the above.

Answer: A

13. In a grouped data, the number of classes preferred are _____.

- a. Minimum possible.
- b. Adequate.
- c. Maximum possible.
- d. Any arbitrarily chosen number.

Answer: B

14. Class interval is measured as _____.

- a. The sum of the upper and lower limit.
- b. Half the sum of upper and lower limit.
- c. Half the difference between upper and lower limit.
- d. The difference between upper and lower limit.

Answer: D

15. A grouped frequency distribution with uncertain first or last classes is known as_____.

- a. Exclusive class distribution.
- b. Inclusive class distribution.
- c. Open end distribution.
- d. Discrete frequency distribution.

Answer: C

16. Frequency of a variable is always_____.

- a. In percentage.
- b. A fraction.
- c. An integer.
- d. None of the above.

Answer: C

UNIT-III

17. 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.

Answer: C

18. In an ordered series, the data are_____.

- a. In ascending order.
- b. In descending order.
- c. Either (1) or (2).
- d. Neither (1) or (2).

Answer: C

19. Trilinear chart is used to portray simultaneously_____.

- a. Two variables.
- b. Three variables.
- c. Four variables.
- d. Any number of variables.

Answer: B

20. Which of the following statements is not correct?

- a. The bars in a histogram touch each other.
- b. The bar in a column chart touches each other.
- c. There are bar diagrams which are known as broken bar diagrams.
- d. Multiple bar diagrams also exist.

Answer: B

21. Shoe size of most of the people in India is No. 8. Which measure of central value does it represent?

- a. Mean.
- b. Second quartile.
- c. Eighth deciles.
- d. Mode.

Answer: D

22. In case of frequency distribution with classes of unequal widths, the heights of bars of a histogram are proportional to_____.

- a. Class frequency.
- b. Class intervals.
- c. Frequencies in percentage.
- d. Frequency densities.

Answer: D

23. Year wise production of rice, wheat and maize for the last ten years can be displayed by_____.

- a. Simple column chart.
- b. Subdivided column chart.
- c. Broken bar diagram.
- d. Multiple column chart.

Answer: D

24. When we have the number of court cases of different categories and information about number of cases settled, the information can be better portrayed through_____.

- a. Sliding bar diagram.
- b. Histogram.
- c. Paired bar diagram.
- d. Column chart.

Answer: A

25. Pictograms are_____.

- a. Very accurate.
- b. Least accurate.
- c. Mostly used.
- d. Scientifically correct.

Answer: B

26. When there are a large number of values in an individual series, preference for portraying the data goes to_____.

- a. Bar diagram.
- b. Column chart.
- c. Line chart.
- d. Scatter diagram.

Answer: C

27. Pie chart represents the components of a factor by_____.

- a. Percentages.
- b. Angels.
- c. Sectors.
- d. Circles.

Answer: C

28. The immigration and out migration of people in a number of countries and also the net migration can be better displayed by_____.

- a. Duo-directional column chart.
- b. Gross-deviation column chart.
- c. Net deviation column chart.
- d. Range chart.

Answer: B

29. The shape of pie diagram is _____

- a. Square.
- b. Conical.
- c. Rectangle.
- d. Circular.

Answer: D

30. Histograms are _____.

- a. One dimensional diagrams.
- b. Two dimensional diagrams.
- c. Three dimensional diagrams.
- d. None of the above.

Answer: A

31. The other name of the cumulative frequency curve is _____

- a. Histogram.
- b. Ogive.
- c. Pie chart.
- d. Bar diagram.

Answer: B

32. If a constant 5 is added to each observation of a set, the mean is _____.

- a. Increased by 5.
- b. Decreased by 5.
- c. 5 times the original mean.
- d. Not affected.

Answer: A

33. If each observation of a set is multiplied by 10, the mean of the new set of observations _____.

- a. Remains the same.
- b. Is 10 times the original mean.
- c. Is one-tenth the original mean.
- d. Is increased by 10.

Answer: B

34. If each value of a series is multiplied by 10, the median of the coded values is _____

- a. Not affected.
- b. 10 times the original median value.
- c. One-tenth of the original median value.
- d. Increased by 10.

Answer: B

35. Individual data is another wise called as _____.

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

Answer: A

36. Extreme value have no effect on_____

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

Answer: B

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37. What percentage of values is greater the 3

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

Answer: C

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

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

Answer: D

UNIT-IV

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

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

Answer: B

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

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

Answer: C

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

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

Answer: A

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

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

Answer: B

43. Mean deviation is Minimum when deviations are taken from_____

- a. Mean.

- b. Median.
- c. Mode
- d. Zero.

Answer: B

44. Which measure of dispersion ensures highest degree of reliability?

- a. Range.
- b. Mean deviation.
- c. Quartile deviation.
- d. Standard deviation.

Answer: D

45. Which measure of dispersion is least affected by extreme values?

- a. Range.
- b. Mean deviation.
- c. Standard deviation.
- d. Quartile deviation.

Answer: D

46. The average of the sum of squares of the deviations about mean is called__

- a. Variance.
- b. Absolute deviation.
- c. Standard deviation.
- d. Mean deviation.

Answer: A

47. For a negatively skewed distribution, the correct inequality is_____

- a. Mode<median.
- b. Mean<median.
- c. Mean<mode.
- d. None of the above.

Answer: C

48. Mean is a measure of _____.

- a. Location.
- b. Dispersion.
- c. Correlation.
- d. Regression.

Answer: A

49. Which of the following is a measure of central value?

- a. Median.
- b. Standard deviation.
- c. Mean deviation.
- d. Quartile deviation.

Answer: A

50. Geometric mean is better than other means _____

—

- a. When the data are positive as well as negative.
- b. When the data are in ratios or percentages.
- c. When the data are binary.
- d. When the data are on interval scale.

Answer: B

51. The correct relationship between A.M, G.M and H.M is _____

- a. $A.M = G.M = H.M.$
- b. $G.M \geq A.M \geq H.M.$
- c. $H.M \geq G.M \geq A.M.$
- d. $A.M \geq G.M \geq H.M.$

Answer: D

52. Which mean is most affected by extreme values?

- a. Geometric mean.
- b. Harmonic mean.
- c. Arithmetic mean.
- d. Trimmed mean.

Answer: C

53. Graphically partition be determined with the help of _____

- a. Frequency polygon.
- b. Bar diagram.
- c. Line diagram.
- d. Ogive curve.

Answer: B

54. Formula for coefficient of variation is _____

a. $C.V = \frac{S.D}{Mean} \times 100$

b. $C.V = \frac{S.D}{Mean}$

c. $C.V = S.D \times Mean$

d. _____

Answer: A

55. The measure of dispersion which ignores signs of the deviations from central value is _____

- a. Range.
- b. Quartile deviation.
- c. Standard deviation.
- d. Mean deviation.

Answer: D

56. In a case of positive skewed distribution the relation between mean, median and mode that hold is _____

- a. $Median > mean > mode.$
- b. $Mean > median > mode.$
- c. $Mean = median = mode.$
- d. $Mean < median < mode.$

Answer: B

57. It is one of the measures of central tendency_____

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

Answer: C

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

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

Answer: C

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

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

Answer: D

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

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

Answer: C

61. Index numbers are also known as _____.

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

Answer: C

62. Index number is a_____.

- a. Measure of relative changes.
- b. A special type of an average.
- c. A percentage relative.
- d. All the above.

Answer: D

63. Most commonly used index number is_____

- a. Diffusion index number.
- b. Price index number.
- c. Value index number.
- d. None of the above.

Answer: D

64. 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.

Answer: B

65. Laspeyre's index numbers possess _____.

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

Answer: C

66. 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.

Answer: B

67. 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).

Answer: C

68. The range of homogeneity error in reference to index numbers is _____.

- a. 0 to 1.
- b. 0 to ∞ .
- c. -1 to 1.
- d. $-\infty$ to ∞ .

Answer: A

69. 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).

Answer: A

70. 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.

Answer: B

71. 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.

Answer: A

72. 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.

Answer: A

73. 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 arbitrary chosen year.

Answer: A

74. The weights used in Pasches formula belong to_____.

- a. The base period.
- b. The given period.
- c. To any arbitrary chosen period.
- d. Average of the weights of a number of periods.

Answer: B

75. Fishers ideal formula does not satisfy _____.

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

Answer: B

76. Factor reversal test permits the interchange of _____.

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

Answer: C

77. The best average to calculate index numbers is_____.

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

Answer: B

78. 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.

Answer: A

79. 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.

Answer: C

80. 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.

Answer: D

UNIT-V

81. If X and Y are two variants, there can be at most_____.

- a. One regression line.
- b. Two regression lines.
- c. Three regression lines.
- d. An infinite number of regression lines.

Answer: B

82. Scatter diagram of the variant values (X,Y) give the idea about_____.

- a. Functional relationship.
- b. Regression model.
- c. Distribution of errors.
- d. None of the above.

Answer: C

83. If β_{yx} and β_{xy} are two regression coefficients, they have_____.

- a. A same sign.
- b. Opposite sign.
- c. Either same or opposite signs.
- d. Nothing can be said.

Answer: A

84. The property if X and Y are independent, then $\beta_{yx} = \beta_{xy} = 0$ is called_____

- a. Fundamental property.
- b. Mean property.
- c. Independence property.
- d. Magnitude property.

Answer: C

85. The coordinates (X, Y) satisfy the lines of regression of_____.

- a. Y on X.
- b. X on Y.
- c. Both the regression lines.
- d. None of the two regression lines.

Answer: C

86. If $\rho=0$, the angle between the two lines of regression is_____.

- a. Zero degree.
- b. Ninety degree.
- c. Sixty degree.
- d. Thirty degree.

Answer: B

87. The idea of product moment correlation was given by_____.

- a. R.A. Fisher.
- b. Sir Frances Galton.
- c. Karl Pearson.
- d. Spearman.

Answer: C

88. 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.

Answer: B

89. The value of correlation ratio varies from _____.

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

Answer: A

90. 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.

Answer: B

91. 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.

Answer: D

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92. 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.

Answer: A

93. The range of simple correlation coefficient is _____.

- a. 0 to ∞ .
- b. $-\infty$ to ∞ .
- c. 0 to 1.
- d. -1 to 1.

Answer: D

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

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

Answer: D

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

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

Answer: C

96. 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.

Answer: B

97. When $r = \pm 1$ the two regression lines are _____.

- a. Perpendicular to each other.
- b. Parallel to each other.
- c. Coincide.
- d. None.

Answer: C

98. The regression lines $5x+2y=16$, and $9x+10y=48$ intersect at _____.

- a. 0,8.
- b. 2,3.
- c. 3,2.
- d. 8,0.

Answer: B

99. Rank correlation method was developed by _____.

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

Answer: C

100. _____ is the geometric mean of two regression coefficient

- a. Mean.
- b. Correlation.
- c. Rank correlation.
- d. Mode.

Answer: B

MATHEMATICAL TECHNIQUE I

K2 QUESTIONS UNIT-I

1. Define Matrix.
2. What is meant by simple interest?
3. What is meant by compound interest?
4. Give one example for matrix.
5. Give one example for addition matrix.
6. Give one example for multiplication matrix.

UNIT-II

1. Define the term Statistics
2. List the scope of statistics.
3. Give some limitations of statistics.
4. Define data.
5. List the two types of data collection.
6. Discuss various function of statistics.
7. How does statistics help a business manager?
8. What is meant by Classification?
9. What is meant by Tabulation?
10. Explain the parts of tabulation.
11. What is primary data? Explain the primary data collecting
12. .What is secondary data? Explain the secondary data methods?

UNIT-III

1. Find the mean of the following data

-3, -2,-1,0,1,2,3,4,

2. Find the mean of 4,6,5,9,12,3,1

3. Write the mean of given data

6,7,10,12,13,4,8,12

4. Write the mean of 6,8,10,12,14,16,18,20,22,24

5. Find the mean of the first n natural numbers.

6. Find the median for the following data

4,6,9,4,2,8,10

7. Find the median for the following data

4,6,5,9,12,3,1,10,13

8. Find the median for the series

25,20,23,32,40,27,30,25,20,10,55,41

9. Write the formula for mean deviation of the grouped data about mean

10. Two series A and B with equal means have standard deviations 9 and 10 respectively, which series is more consistent.

11. If the coefficient of variation and standard deviation are 60,21 respectively, What is the arithmetic mean of the distribution.

12. If variance = 4 Sq.ft. Find S.D

13. Define Median.

14. What is scheduling?

15. What is meant by Mean?

16. What is meant Mode?.

UNIT-IV

1. What are the requisites of a good measure of dispersion?
2. Explain the various types of measures of dispersion.
3. State the merits and demerits of geometric mean and give an example of suitable average
4. Define geometric mean. How would you compute it in (i) Individual series (ii) Discrete series and (iii) Continuous Series?
5. What are the requisites of a good average? Compare the mean, the median and mode in the light of these requisites. Why are average called measures of central tendency?
6. What do you mean by central tendency? What is the importance of measuring central tendency?
7. Explain the concept and uses of False Base Line.
8. Explain fully the nature and causes of distrust of statistics.
9. Define Measure of Dispersion

10. What is correlation? What are the types of correlation?
11. Write the difference between correlation and regression?
12. Define Range.
13. Find the range of given data
108, 107, 105, 106, 107, 104, 103, 101, 104
14. Find the range of 16, 18, 18, 16, 18, 20, 17, 19, 16, 24
15. Find the range of 90, 50, 72, 69, 85, 100, 73, 85, 93
16. Find the range of 25, 37, 11, 20, 14, 18, 16, 30, 35, 17
17. Find the range of 17, 10, 12, 8, 12, 16, 19

18 Find the range of the following distribution

Class

Interval 10-20 20-30 30-40 40-50 50-60

Frequency 8 10 15 18 19

19. Find the range of the following data

Profit 0-10 10-20 20-30 30-40 40-50

No. of firms 0 6 0 7 15

20. Calculate the range for the distribution given below

Height in cms 150 151 152 154 159 160 165 166

No. of Boys 2 2 9 15 18 10 4 1

UNIT-V

1. Distinguish between Correlation and Regression.
2. What is regression? What are the uses of regression analysis?
3. What are Regression lines?
4. Explain the various problems in construction of price index numbers.
5. Define index number.
6. Write the formula for correlation.
7. Write the formula for regression .
8. What is meant by rank correlation.
9. Write any one difference between correlation and regression.
10. what is meant by scatter diagram.

MATHEMATICAL TECHNIQUE I
K3 QUESTIONS
UNIT-I

1. If $A = \begin{pmatrix} 1 & 2 & 3 \\ 0 & -1 & 1 \\ 2 & 3 & 0 \end{pmatrix}$ and $B = \begin{pmatrix} 3 & 1 & 0 \\ 1 & -1 & 2 \\ 0 & 2 & 1 \end{pmatrix}$

Then find $A+B$ and $A-B$

5. Calculate the mean for the data given below

No of persons per house	2	3	4	5	6
No of houses	10	25	30	25	10

UNIT-II

6. Calculate the median for the data given below

Marks	10-25	25-40	40-55	55-70	70-85	85-100
No of students	6	20	44	26	3	1

7. What is the importance of measures of Dispersion?

8. Calculate inter quartile range, quartile deviation and co-efficient of quartile deviation from the following data

ROLL NO	1	2	3	4	5	6	7
MARKS	20	28	40	12	30	15	30

9 Distinguish between correlation and regression

10. calculate the Co-efficient of skewness

25,15,23,40,27.25,23,25,20

UNIT-III

2 What is the simple interest on Rs. 2000 at the rate of 6% for 4 years? Find also the amount

3. what are the functions of statistics?

4. What are the four types of classifications?

11. If $A = \begin{pmatrix} 2 & 3 & 5 \\ -1 & 4 & 5 \\ 1 & -3 & -4 \end{pmatrix}$ and $B = \begin{pmatrix} -1 & 2 & 6 \\ 1 & -2 & -6 \\ -1 & 2 & 6 \end{pmatrix}$

Then find AB and BA

12. Calculate the compound interest for Rs.20, 000 for 3 years at 7% per annum. What will be the simple interest in the above case?

13. calculate the Mean, Median, and Mode for the following data

MARKS	11-20	21-30	31-40	41-50	51-60	61-70	71-80
NO OF STUDENTS	42	38	120	84	48	36	31

14. Calculate Geometric Mean

WEIGHT	130	135	140	145	146	148	149	150	157
NO OF PERSONS	3	4	6	6	3	5	2	1	1

15. Explain the different methods of collecting primary data.

UNIT-IV

16. Explain the various parts of good statistical table.

17. calculate S.D from the following observations

72,56,35,48,85,72,25,66,92,42

18. Calculate Karl –Pearson’s Co-efficient of skew ness for the following data

X	1	3	4	5	6	7	9	10
F	1	4	10	25	13	7	6	4

19. find the Co-efficient of correlation for the following

X	10	12	13	16	17	20	25
Y	19	22	26	27	29	33	37

20. Find regression equations of X and Y

X	10	12	13	12	16	15
Y	40	38	43	45	37	43

UNIT-V

21 11. If $A = \begin{vmatrix} 3 & 5 \\ 1 & 9 \end{vmatrix}$ and $B = \begin{vmatrix} 0 & 4 \\ 6 & 3 \end{vmatrix}$
 a. Show that $AB \neq BA$

22 12. Calculate the total amount that will be received from the debtor when the principal Rs.22000 is lent to him interest for 7 years at 9% interest per annum

- 23 13. Mr.Prabhu borrowed Rs.36000 from Ganesh but he could not repay the amount in the period of 9 years .Accordingly, Chandru demands now Rs.58,220 from prabhu. At what percent p.a. compound interest did chandru lent his money?
- 24 14.Show the formula of Both Simple Interest and compound Interest and give brief explanation of symbols used.

25.The monthly income of 12 families in a town is given below

S.NO	1	2	3	4	5	6	7	8	9	11	12
INCOME(Rs)	280	180	96	98	104	85	80	94	100	600	200

DEPARTMENT OF BUSINESS ADMINISTRATION
18UBM1A1-MATHEMATICAL TECHNIQUES-I
K4 QUESTIONS

UNIT-I

1. If $A = \begin{pmatrix} 1 & 9 & 5 \\ -6 & 2 & -8 \\ -3 & 2 & 3 \\ -1 & 4 & 2 \end{pmatrix}$ and $B = \begin{pmatrix} 2 & -5 & -3 \\ 3 & 2 & 4 \\ 1 & 6 & 5 \\ 2 & -1 & -4 \end{pmatrix}$

Find AB

2. Two shops A and B have in stock the following type of radios

	Single Band	Two Band	Three Band
Shop A	23	20	15
Shop B	40	10	8

Shop A places order for 40 single band, 40 two band and 20 three band radios whereas Shop B orders 26, 30, 20 numbers of the three varieties. Due to various factors they receive only half of the order as supplied by the manufacturers. The costs of the three types of the radios are Rs.100, Rs.220 and Rs.300 respectively. Represent the following as matrices

- (i) The initial stock
 - (ii) The order
 - (iii) The supply
 - (iv) Final stock
 - (v) Cost of individual matrix (column matrix) and
 - (vi) Total cost of stock in the shops
3. Calculate the compound interest for Rs.8500 for 8 years at 12% per annum
- (i) Calculate the compound interest in the above case when interest is compounded (annually)
 - (ii) Half yearly and
 - (iii) Quarterly

UNIT-II

1. Define classification? Write down the various types of classification
2. (i) A sum of money amounted to Rs.1097 in 8 months and Rs.1127 in 19 months calculate the rate of interest
(ii) Mr.Hari borrows Rs.1,20,000 at 24% compounded monthly. Find the amount he has to repay at the end of 3 years
3. The annual profits of companies are given below. Find the arithmetic mean and median

ANNUAL

PROFITS(Rs.lakhs

	0-19	20-39	40-59	60-79	80-99	100-119	120-139	140-159
No of Companies	12	14	35	42	24	12	11	9

4. Comment on the performance of the students of 3 Universities given below using simple & weighted averages

university	Bombay		Calcutta		madras	
	% of marks	No of students	% of marks	No of students	% of marks	No of students
Course of study						

BBM	62	4	81	2	88	4
MBA	52	2	78	5	56	2
BA	58	3	75	4	59	8
MA	60	5	66	6	74	6
BCOM	74	6	62	3	75	3
MCOM	71	8	65	5	76	3
BSC	73	2	79	8	72	4
MSC	52	7	72	2	71	4

8. What is mean by Data? Show its types

9. Calculate the Median from the following data

Marks	10-25	25-40	40-55	55-70	70-85	85-100
Frequency	6	20	44	26	3	1

UNIT-III

11. Find the mean deviation about the mean for the following data.

MarksObtained	10-20	20-30	30-40	40-50	50-60	60-70	70-80
No. ofStudents	2	3	8	14	8	3	2

12. Find the mean deviation about the mean for the following frequency distribution

Class

Interval	0-4	4-8	8-12	12-16	16-20	
Frequency	4		6	8	5	2

13. Find the mean deviation about the mean for the data

Height in cms	95-105	105-115	115-125	125-135	135-145	145-155
No. ofBoys	9	13	26	30	12	10

14. Find the mean deviation about the mean for the data

Income

per day	0-100	100-200	200-300	300-400	400-500	500-600	600-700	700-800
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No. of

Persons	4	8	9	10	7	5	4	3
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15. Find the mean deviation about the mean for the data

Wages(in Rs.)	50	100	150	175	200	225	300
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No. of Workers 5 10 15 20 10 5 5

UNIT-IV

16. Find the mean deviation about the mean for the data

Salesmen 4-8 8-12 12-16 16-20 20-24 24-28 28-32 32-36 36-40

Reports 11 13 16 14 10 9 17 6 4

17. Find the mean deviation about the mean for the data

Marks Scored 0-10 10-20 20-30 30-40 40-50

No. of Students 3 8 12 10 7

18. Find the mean deviation about median for the data

Wages (in Rs.) 0-25 25-50 50-75 75-100 100-125 125-150

No. of Persons 10 30 40 25 20 15

19. Find the mean deviation about median for the data

Marks 0-10 10-20 20-30 30-40 40-50 50-60

No. of Girls 6 8 14 16 4 2

20. Find the mean deviation about median for the data

Heights

(in feet) 10-12 12-14 14-16 16-18 18-20

No. of Trees 2 6 8 3 1

UNIT-V

21. Find the mean deviation about median for the Age distribution of

100 persons given below

Age 16-20 21-25 26-30 31-35 36-40 41-45 46-50 51-55

Number 5 6 12 14 26 12 16 9

22. Find the variance for the following data

6 10 14 18 24 28 30

2 4 7 12 8 4 3

23. Find the variance for the following data

4 8 11 17 20 24 32

3 5 9 5 4 3 1

24. Find the mean deviation about median for the following frequency distribution

Marks 0-10 10-20 20-30 30-40 40-50

No. of

Students

5 8 15 16 6

25. Find the standard deviation () & Coefficient of variance for the following series

4,6,10,12,18

26. Find the mean and variance for the following data

2,4,5,6,8,17

27. Find the mean, variance and standard deviation for the following data.

5,8,12,15,7,9,13,11

28. Find the variance and standard deviation for the following data

x 5 10 15 20 25

f 3 2 5 8 2