MULTIPLE CHOICE QUESTIONS ON QUANTITATIVE TECHNIQUES

1. The techniques which provide the decision maker a systematic and powerful means of analysis to explore policies for achieving predetermined goals are called.....
   a. Correlation techniques
   b. Mathematical techniques
   c. Quantitative techniques
   d. None of the above
2. Correlation analysis is a .....
   a. Univariate analysis
   b. Bivariate analysis
   c. Multivariate analysis
   d. Both b and c
3. If change in one variable results a corresponding change in the other variable, then the variables are.....
   a. Correlated
   b. Not correlated
   c. Any of the above
   d. None of the above
4. When the values of two variables move in the same direction, correlation is said to be .....
   a. Linear
   b. Non-linear
   c. Positive
   d. Negative
5. When the values of two variables move in the opposite directions, correlation is said to be .....
   a. Linear
   b. Non-linear
   c. Positive
   d. Negative
6. When the amount of change in one variable leads to a constant ratio of change in the other variable, then correlation is said to be .....
   a. Linear
   b. Non-linear
   c. Positive
   d. Negative

7. .....attempts to determine the degree of relationship between variables.
   a. Regression analysis
   b. Correlation analysis
   c. Inferential analysis
   d. None of these
8. Non-linear correlation is also called.....
   a. Non-curvy linear correlation
   b. Curvy linear correlation
   c. Zero correlation
   d. None of these
9. Scatter diagram is also called .....
   a. Dot chart
   b. Correlation graph
   c. Both a and b
   d. None of these
10. If all the points of a scatter diagram lie on a straight line falling from left upper corner to the right bottom corner, the correlation is called.....
    a. Zero correlation
    b. High degree of positive correlation
    c. Perfect negative correlation
    d. Perfect positive correlation
11. If all the dots of a scatter diagram lie on a straight line falling from left bottom corner to the right upper corner, the correlation is called.....
    a. Zero correlation
    b. High degree of positive correlation
    c. Perfect negative correlation
    d. Perfect positive correlation
12. Numerical measure of correlation is called .....
    a. Coefficient of correlation
    b. Coefficient of determination
    c. Coefficient of non-determination
    d. Coefficient of regression
13. Coefficient of correlation explains:
    a. Concentration
    b. Relation
    c. Dispersion
    d. Asymmetry
14. Coefficient of correlation lies between:
    a. 0 and +1
    b. 0 and –1

c. –1 and +1
d. – 3 and +3

15. A high degree of +ve correlation between availability of rainfall and weight of weight of people is:
    a. A meaningless correlation
    b. A spurious correlation
    c. A nonsense correlation
    d. All of the above
16. If the ratio of change in one variable is equal to the ratio of change in the other variable, then the correlation is said to be .....
    a. Linear
    b. Non-linear
    c. Curvilinear
    d. None of these
17. Pearsonian correlation coefficient if denoted by the symbol .....
    a. K
    b. r
    c. R
    d. None of these
18. If r= +1, the correlation is said to be .....
    a. High degree of +ve correlation
    b. High degree of –ve correlation
    c. Perfect +ve correlation
    d. Perfect –ve correlation
19. If the dots in a scatter diagram fall on a narrow band, it indicates a ..... degree of correlation.
    a. Zero
    b. High
    c. Low
    d. None of these
20. If all the points of a dot chart lie on a straight line vertical to the X-axis, then coefficient of correlation is .....
    a. 0
    b. +1
    c. –1
    d. None of these
21. If all the points of a dot chart lie on a straight line parallel to the X-axis, it denotes .....of correlation.
    a. High degree
    b. Low degree
    c. Moderate degree

d. Absence

22. If dots are lying on a scatter diagram in a haphazard manner, then r = ...
    a. 0
    b. +1
    c. –1
    d. None of these
23. The unit of Coefficient of correlation is .....
    a. Percentage
    b. Ratio
    c. Same unit of the data
    d. No unit
24. Product moment correlation method is also called .....
    a. Rank correlation
    b. Pearsonian correlation
    c. Concurrent deviation
    d. None of these
25. The –ve sign of correlation coefficient between X and Y indicates.....
    a. X decreasing, Y increasing
    b. X increasing, Y decreasing
    c. Any of the above
    d. There is no change in X and Y
26. Coefficient of correlation explains .....of the relationship between two variables.
    a. Degree
    b. Direction
    c. Both of the above
    d. None of the above
27. For perfect correlation, the coefficient of correlation should be .....
    a. ± 1
    b. + 1
    c. – 1
    d. 0
28. Rank correlation coefficient was discovered by.....
    a. Fisher
    b. Spearman
    c. Karl Pearson
    d. Bowley
29. The rank correlation coefficient is always.....
    a. + 1
    b. – 1
    c. 0

d. Between + 1 and – 1

30. Spearman's Rank Correlation Coefficient is usually denoted by.....
    a. k
    b. r
    c. S
    d. R
31. Probable error is used to:
    a. Test the reliability of correlation coefficient
    b. Measure the error in correlation coefficient
    c. Both a an b
    d. None of these
32. If coefficient of correlation is more than .....of its P E, correlation is significant.
    a. 2 times
    b. 5 times
    c. 6 times
    d. 10 times
33. In correlation analysis, Probable Error = ... x 0.6745
    a. Standard deviation
    b. Standard error
    c. Coefficient of correlation
    d. None of these
34. Coefficient of concurrent deviation depends on .....
    a. The signs of the deviations
    b. The magnitude of the deviations
    c. Bothe a and b
    d. None of these
35. Correlation analysis between two sets of data only is called.....
    a. Partial correlation
    b. Multiple correlation
    c. Nonsense correlation
    d. Simple correlation
36. Correlation analysis between one dependent variable with one independent variable by keeping the other independent variables as constant is called.....
    a. Partial correlation
    b. Multiple correlation
    c. Nonsense correlation
    d. Simple correlation
37. Study of correlation among three or more variables simultaneously is called.....
    a. Partial correlation
    b. Multiple correlation
    c. Nonsense correlation

d. Simple correlation

38. If r = 0.8, coefficient of determination is.....
    a. 80%
    b. 8%
    c. 64%
    d. 0.8%
39. If r is the simple correlation coefficient, the quantity r^2 is known as .....
    a. Coefficient of determination
    b. Coefficient of non-determination
    c. Coefficient of alienation
    d. None of these
40. If r is the simple correlation coefficient, the quantity $1 - r^2$ is known as .....
    a. Coefficient of determination
    b. Coefficient of non-determination
    c. Coefficient of alienation
    d. None of these
41. The term regression was first used by.....
    a. Karl Pearson
    b. Spearman
    c. R A Fisher
    d. Francis Galton
42. .....refers to analysis of average relationship between two variables to provide mechanism for prediction.
    a. Correlation
    b. Regression
    c. Standard error
    d. None of these
43. If there are two variables, there can be at most..... number of regression lines.
    a. One
    b. Two
    c. Three
    d. Infinite
44. If the regression line is Y on X, then the variable X is known as.....
    a. Independent variable
    b. Explanatory variable
    c. Regressor
    d. All the above
45. Regression line is also called.....
    a. Estimating equation
    b. Prediction equation

c. Line of average relationship
d. All the above

46. If the regression line is X on Y, then the variable X is known as.....
    a. Dependent variable
    b. Explained variable
    c. Both a and b
    d. Regressor
47. If the regression line is X on Y, then the variable X is known as.....
    a. Dependent variable
    b. Independent variable
    c. Bothe a and b
    d. None of the above
48. If the regression line is Y on X, then the variable X is known as.....
    a. Dependent variable
    b. Independent variable
    c. Both a and b
    d. None of the above
49. The point of intersection of two regression lines is.....
    a. (0,0)
    b. (1,1)
    c. (x,y)
    d. $(\bar{x}, \bar{y})$
50. If r = ± 1, the two regression lines are.....
    a. Coincident
    b. Parallel
    c. Perpendicular to each other
    d. None of these
51. If r = 1, the angle between the two regression lines is.....
    a. Ninety degree
    b. Thirty degree
    c. Zero degree
    d. Sixty degree
52. If r = 0, the two regression lines are:
    a. Coincident
    b. Parallel
    c. Perpendicular to each other
    d. None of these
53. If b_{xy} and b_{yx} are two regression coefficients, they have:
    a. Same signs
    b. Opposite signs
    c. Either a or b

d. None of the above.

54. If $b_{yx} > 1$, then b_{xy} is:
    a. Greater than one
    b. Less than one
    c. Equal to one
    d. Equal to zero
55. If X and Y are independent, the value of b_{yx} is equal to .....
    a. Zero
    b. One
    c. Infinity
    d. Any positive value
56. The property that both the regression coefficients and correlation coefficient have same signs is called.....
    a. Fundamental property
    b. Magnitude property
    c. Signature property
    d. None of these
57. The property that $b_{yx} > 1$ implies that $b_{xy} < 1$ is known as .....
    a. Fundamental property
    b. Magnitude property
    c. Signature property
    d. None of these
58. If X and Y are independent, the property $b_{yx} = b_{xy} = 0$ is called .....
    a. Fundamental property
    b. Magnitude property
    c. Mean property
    d. Independence property
59. The Correlation coefficient between two variables is the ..... of their regression coefficients.
    a. Arithmetic mean
    b. Geometric mean
    c. Harmonic mean
    d. None of these
60. If the correlation coefficient between two variables, X and Y, is negative, then the regression coefficient of Y on X is.....
    a. Positive
    b. Negative
    c. Not certain
    d. None of these
61. The G M of two regression coefficients b_{yx} and b_{xy} is equal to .....
    a. r

b. r^2
c. $1-r^2$
d. None of these

62. If one regression coefficient is negative, the other is .....
a. 0
b. – ve
c. +ve
d. Either a or b

63. Arithmetic mean of the two regression coefficients is:
a. Equal to correlation coefficient
b. Greater than correlation coefficient
c. Less than correlation coefficient
d. Equal to or greater than correlation coefficient

64. b_{yx} is the regression coefficient of the regression equation.....
a. Y on X
b. X on Y
c. Either a or b
d. None of these

65. b_{xy} is the regression coefficient of the regression equation.....
a. Y on X
b. X on Y
c. Either a or b
d. None of these

66. In ..... regression analysis, only one independent variable is used to explain the dependent variable.
a. Multiple
b. Non-linear
c. Linear
d. None of these

67. The regression coefficient and correlation coefficient of the two variables will be the same if their .....are same.
a. Arithmetic mean
b. Standard deviation
c. Geometric mean
d. Mean deviation

68. The idea of testing of hypothesis was first set forth by .....
a. R A Fisher
b. J Neyman
c. E L Lehman
d. A Wald

69. By testing of hypothesis, we mean:

a. A significant procedure in Statistics
b. A method of making a significant statement
c. A rule for accepting or rejecting hypothesis
d. A significant estimation of a problem.

70. Testing of hypothesis and .....are the two branches of statistical inference.
a. Statistical analysis
b. Probability
c. Correlation analysis
d. Estimation

71. ..... is the original hypothesis
a. Null hypothesis
b. Alternative hypothesis
c. Either a or b
d. None of these

72. A null hypothesis is denoted by.....
a. H_0
b. H_1
c. NH
d. None of these

73. An alternative hypothesis is denoted by.....
a. H_0
b. H_1
c. AH
d. None of these

74. Whether a test is one sided or two sided, depends on.....
a. Simple hypothesis
b. Composite hypothesis
c. Null hypothesis
d. Alternative hypothesis

75. A wrong decision about null hypothesis leads to:
a. One kind of error
b. Two kinds of errors
c. Three kinds of errors
d. Four kinds of errors

76. Power of a test is related to .....
a. Type I error
b. Type II error
c. Both a and b
d. None of these

77. Level of significance is the probability of.....
a. Type I error

b. Type II error
c. Both a and b
d. None of these

78. Which type of error is more severe error:
a. Type I error
b. Type II error
c. Both a and b
d. None of these

79. Type II error means.....
a. Accepting a true hypothesis
b. Rejecting a true hypothesis
c. Accepting a wrong hypothesis
d. Rejecting a wrong hypothesis

80. Type I error is denoted by.....
a. Alpha
b. Beta
c. Gamma
d. None of these

81. Type II error is denoted by.....
a. Alpha
b. Beta
c. Gamma
d. None of these

82. The level of probability of accepting a true null hypothesis is called.....
a. Degree of freedom
b. Level of significance
c. Level of confidence
d. D,

83. The probability of rejecting a true null hypothesis is called.....
a. Degree of freedom
b. Level of significance
c. Level of confidence
d. None of these

84. 1 – Level of confidence =.....
a. Level of significance
b. Degree of freedom
c. Either a or b
d. None of these

85. While testing a hypothesis, if level of significance is not mentioned, we take ..... level of significance.
a. 1%

b. 2%
c. 5%
d. 10%

86. A sample is treated as large sample, when its size is.....
    a. More than 100
    b. More than 75
    c. More than 50
    d. More than 30
87. .....refers to the number of independent observations which is obtained by subtracting the number of constraints from the total number of observations.
    a. Sample size
    b. Degree of freedom
    c. Level of significance
    d. Level of confidence
88. Total number of observations – number of constraints =.....
    a. Level of significance
    b. Degree of freedom
    c. Level of confidence
    d. Sample size
89. Accepting a null hypothesis when it is false is called.....
    a. Type I error
    b. Type II error
    c. Probable error
    d. Standard error
90. Accepting a null hypothesis when it is true is called.....
    a. Type I error
    b. Type II error
    c. Probable error
    d. No error
91. When sample is small,..... test is applied.
    a. t-test
    b. Z test
    c. F test
    d. None of these
92. To test a hypothesis about proportions of items in a class, the usual test is.....
    a. t-test
    b. Z- test
    c. F test
    d. Sign test
93. Student's t-test is applicable when:
    a. The values of the variate are independent

b. The variable is distributed normally
c. The sample is small
d. All the above

94. Testing of hypotheses $H_o : \mu = 45$ vs. $H_1 : \mu > 45$ when the population standard deviation is known, the appropriate test is:
a. t-test
b. Z test
c. Chi-square test
d. F test

95. Testing of hypotheses $H_o : \mu = 85$ vs. $H_1 : \mu > 85$, is a .....test.
a. One sided left tailed test
b. One sided right tailed test
c. Two tailed test
d. None of these

96. Testing of hypotheses $H_o : \mu = 65$ vs. $H_1 : \mu < 65$, is a .....test.
a. One sided left tailed test
b. One sided right tailed test
c. Two tailed test
d. None of these

97. Testing of hypotheses $H_o : \mu = 65$ vs. $H_1 : \mu \neq 65$, is a .....test.
a. One sided left tailed test
b. One sided right tailed test
c. Two tailed test
d. None of these

98. Student's t-test was designed by .....
a. R A Fisher
b. Wilcoxon
c. Wald wolfowitz
d. W S Gosset

99. Z test was designed by .....
a. R A Fisher
b. Wilcoxon
c. Wald wolfowitz
d. W S Gosset

100. Z test was designed by .....
a. R A Fisher
b. Wilcoxon
c. Wald wolfowitz
d. W S Gosset

101. The range of F ratio is .....
a. – 1 to + 1

b. $-\infty$ to ∞

c. 0 to ∞

d. 0 to 1

102. While computing F ratio, customarily, the larger variance is taken as .....
   a. Denominator
   b. Numerator
   c. Either way
   d. None of these

103. Chi-square test was first used by .....
   a. R A Fisher
   b. William Gosset
   c. James Bernoulli
   d. Karl Pearson

104. The Chi-squre quantity ranges from ..... to .....
   a. – 1 to + 1
   b. $-\infty$ to ∞
   c. 0 to ∞
   d. 0 to 1

105. Degrees of freedom for Chi-squre test in case of contingency table of order (2x2) is:
   a. 4
   b. 3
   c. 2
   d. 1

106. Degrees of freedom for Chi-squre test in case of contingency table of order (4x3) is:
   a. 4
   b. 3
   c. 6
   d. 7

107. Degrees of freedom for Chi-squre test in case of contingency table of order (5x5) is:
   a. 25
   b. 16
   c. 10
   d. Infinity

108. The magnitude of the difference between observed frequencies and expected frequencies is called .....
   a. F value
   b. Z value
   c. t value

d. Chi-square value

109. When the expected frequencies and observed frequencies completely coincide, the chi-square value will be .....
   a. + 1
   b. – 1
   c. 0
   d. None of these

110. If the discrepancy between observed and expected frequencies are greater, ... will be the chi-square value.
   a. Greater
   b. Smaller
   c. Zero
   d. None of these

111. Calculated value of chi-square is always.....
   a. Positive
   b. Negative
   c. Zero
   d. None of these

112. While applying chi-square test, the frequency in any cell should not be .....
   a. More than 5
   b. Less than 5
   c. More than 10
   d. Less than 10

113. Analysis of variance utilises.....
   a. F test
   b. Chi square test
   c. Z test
   d. t test

114. In one way ANOVA, the variances are:
   a. Within samples
   b. Between samples
   c. Total
   d. All

115. The technique of analysis of variance was developed by .....
   a. Frank Wilcoxon
   b. Karl Pearson
   c. R A Fisher
   d. Kolmogrov

116. Non-parametric test is :
   a. Distribution free test
   b. Not concerned with parameter

c. Does not depend on the particular form of the distribution
d. None of these

117.....tests follow assumptions about population parameters.
a. Parametric
b. Non-parametric
c. One-tailed
d. Two-tailed

118.....is the simplest and most widely used non-parametric test
a. Sign test
b. K-S test
c. Chi-square tst
d. Wilcoxon matched paired test

119. Runs test was designed by .....
a. Kruskal and Wallis
b. Kolmogrov and Smirnov
c. Wald wolfowitz
d. Karl Pearson

120. Which one of the following is a non-parametric test?
a. F test
b. Z test
c. t test
d. Wilcoxon test

121. Control charts are also termed as.....
a. Shewart charts
b. Process behaviour chart
c. Both a and b
d. None of these

122. What type of chart will be used to plot the number of defective in the output of any process?
a. $\bar{x}$ chart
b. R chart
c. C chart
d. P chart

123. Process control is carried out:
a. Before production
b. During production
c. After production
d. All of the above

124. The dividing lines between random and non-random deviations from mean of the distribution are known as .....
a. Upper Control Limit

b. Lower Control Limit
c. Control Limits
d. Two sigma limit

125. The control charts used to monitor variable is.....
a. Range chart
b. P-chart
c. C-chart
d. All of the above

126. The control charts used to monitor attributes is.....
a. Range chart
b. P-chart
c. C-chart
d. All of the above

127. The control charts used for the fraction of defective items in a sample is.....
a. Range chart
b. P-chart
c. C-chart
d. Mean chart

128. The control charts used for the number of defects per unit is:
a. Range chart
b. P-chart
c. C-chart
d. Mean chart

129. .....is user for testing goodness of fit.
a. Wilcoxon test
b. Sign test
c. K-S Test
d. Chi-square test

130. Which of the following is a non-parametric test?
a. F-test
b. Z-test
c. Wilcoxon test
d. All of the above

131. Regression coefficient is independent of.....
a. Origin
b. Scale
c. Both a and b
d. Neither origin nor scale

132. The geometric mean of the two regression coefficient, bxy and byx is equal to:
a. r

b. r^2
c. 1
d. None of the above

133. In a correlation analysis, if r= 0, then we may say that there is ..... between variables.
a. No correlation
b. Linear correlation
c. Perfect correlation
d. none of these

134. If 'r' is the correlation coefficient between two variables, then:
a. $0 < r < 1$
b. $-1 \leq r \leq 1$
c. $r \geq 0$
d. $r \leq 0$

****

ANSWERS

1 : c	21 : d	41 : d	61 : a	81 : b	101 : c	121 : c
2 : d	22 : a	42 : b	62 : b	82 : c	102 : b	122 : d
3 : a	23 : d	43 : b	63 : b	83 : b	103 : d	123 : b
4 : c	24 : b	44 : d	64 : a	84 : a	104 : c	124 : c
5 : d	25 : c	45 : d	65 : b	85 : c	105 : d	125 : a
6 : a	26 : c	46 : c	66 : c	86 : d	106 : c	126 : b
7 : b	27 : a	47 : a	67 : b	87 : b	107 : b	127 : b
8 : b	28 : b	48 : b	68 : b	88 : b	108 : d	128 : c
9 : a	29 : d	49 : d	69 : c	89 : b	109 : c	129 : d
10 : c	30 : d	50 : a	70 : d	90 : d	110 : a	130 : c
11 : d	31 : a	51 : c	71 : a	91 : a	111 : a	131 : a
12 : a	32 : c	52 : c	72 : a	92 : b	112 : b	132 : a
13 : b	33 : b	53 : a	73 : b	93 : d	113 : a	133 : a
14 : c	34 : a	54 : b	74 : d	94 : b	114 : d	134 : b
15 : d	35 : d	55 : a	75 : b	95 : b	115 : c	
16 : a	36 : a	56 : c	76 : b	96 : a	116 : d	
17 : c	37 : b	57 : b	77 : a	97 : c	117 : a	
18 : c	38 : c	58 : d	78 : b	98 : d	118 : c	
19 : b	39 : a	59 : b	79 : c	99 : a	119 : c	
20 : a	40 : b	60 : b	80 : a	100 : a	120 : a	

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