QUANTITATIVE TECHNIQUES FOR BUSINESS DECISIONS

1. The strength (degree) of the correlation between a set of independent variables X and a dependent variable Y is measured by

   A) Coefficient of Correlation   B) Coefficient of Determination   C) Standard error of estimate   D) All of the above

2. The percent of total variation of the dependent variable Y explained by the set of independent variables X is measured by

A) Coefficient of CorrelationB) Coefficient of Skewness
C) Coefficient of Determination
D) Standard Error or Estimate
E) Multicollinearity

3. A coefficient of correlation is computed to be -0.95 means that

A) The relationship between two variables is weak
B) The relationship between two variables is strong and positive
C) The relationship between two variables is strong and but negative
D) Correlation coefficient cannot have this value

4. Let the coefficient of determination computed to be 0.39 in a problem involving one independent variable and one dependent variable. This result means that

A) The relationship between two variables is negative
B) The correlation coefficient is 0.39 also
C) 39% of the total variation is explained by the independent variable
D) 39% of the total variation is explained by the dependent variable

5. Relationship between correlation coefficient and coefficient of determination is that

A) both are unrelated
B) The coefficient of determination is the coefficient of correlation squared
C) The coefficient of determination is the square root of the coefficient of correlation
D) both are equal

6. Multicollinearity exists when

A) Independent variables are correlated less than -0.70 or more than 0.70
B) An independent variables is strongly correlated with a dependent variable
C) There is only one independent variable
D) The relationship between dependent and independent variable is non-linear

7. If "time" is used as the independent variable in a simple linear regression analysis, then which of the following assumption could be violated

A) There is a linear relationship between the independent and dependent variables
B) The residual variation is the same for all fitted values of Y
C) The residuals are normally distributed
D) Successive observations of the dependent variable are uncorrelated

8. In multiple regression, when the global test of significance is rejected, we can conclude that

A) All of the net sample regression coefficients are equal to zero
B) All of the sample regression coefficients are not equal to zero
C) At least one sample regression coefficient is not equal to zero
D) The regression equation intersects the Y-axis at zero.

9. A residual is defined as

A) $Y-Y^{\wedge}$

B) Error sum of square
C) Regression sum of squares
D) Type I Error

10. What test statistic is used for a global test of significance?

A) Z test
B) t test
C) Chi-square test
D) F test

11. The correlation coefficient is used to determine:

(A) A specific value of the y-variable given a specific value of the x -variable

(B) A specific value of the x - variable given a specific value of the y - variable

(C) The strength of the relationship between the x and y variables

(D)None of these

12.If there is a very strong correlation between two variables then the correlation coefficient must be

(A) any value larger than 1

(B) much smaller than 0, if the correlation is negative

(C) much larger than 0, regardless of whether the correlation is negative or positive

(D) None of these alternatives is correct.

13.In regression, the equation that describes how the responsevariable (y) is related to the explanatory variable (x) is:

(A) the correlation model

(B) the regression model

(C) used to compute the correlation coefficient

(D) None of these alternatives is correct

14.SSE can never be

(A) larger than SST   (B) smaller than SST   (C) equal to 1   (D) equal to zero

15.Relationship between correlation coefficient and coefficient of determination is that

A both are unrelated

B The coefficient of determination is the coefficient of correlation squared

C The coefficient of determination is the square root of the coefficient of correlation

D both are equal

16.In multiple regression, when the global test of significance is rejected, we can conclude that

A All of the net sample regression coefficients are equal to zero

B All of the sample regression coefficients are not equal to zero

C At least one sample regression coefficient is not equal to zero

D The regression equation intersects the Y-axis at zero.

17. In general, the expected frequencies per cell in the conduct of a Chi-Square test are those one would

A. expect to find in a given cell if the null hypothesis were actually true

B. expect to find in a given cell if either the null hypothesis or the alternative hypothesis were actually true

C. expect to find in a given cell if the null hypothesis were actually false

D. expect to find in a given cell if the alternative hypothesis were actually true

18. The degrees of freedom for the Chi-Square test statistic when testing for independence in a contingency table with 4 rows and 4 columns would be

A. 5   B. 9   C. 7   D. 12

19. Which of the following statistical methods is appropriate to test whether or not there is sufficient evidence of a difference between the proportions of two related samples?

A. Chi-Square test of independence   B. Wilcoxon Rank Sum Test C. Kruskal-Wallis rank test D. McNemar Test

20. When using the chi-square test for differences in two proportions with a contingency table that has r rows and c columns, the degrees of freedom for the test statistic will be:

A. $(r - 1) + (c - 1)$.B. $n1 + n2 - 2$.C. $n - 1$.   D. $(r - 1)(c - 1)$.

21. An advantage of nonparametric statistics is that

A. you need a computer to calculate them.   B. they have many assumptions to meet.

C. they are easy to calculate.   D. they are very powerful

22. In most situations, parametric tests

A. have the same power as nonparametric tests.

B. are less powerful than nonparametric tests.

C. are more powerful than nonparametric tests.

D. are less sensitive than nonparametric tests.

23. If you have nominal data which nonparametric statistic should you use?

A. Chi-square   B. Spearman's rho   C. the t-test   D. Wilcoxon

24. Power of a test is related to
    A. Type I error   B. type II error   C. both a and b   D. none

25. Range of variance ratio, F is
    A. -1 to +1   B. $-\infty$ to ∞ C. 0 to ∞ D. 0 to 1

26. In one way classification of ANOVA the observations are classified into
    A. two groups   B. three Groups   C. as many as required   D. many group

27. In one way ANOVA the variance are
    A. between samples   B. within samples   C. total   D. all

28. Probable error is used for
    A. measuring the error in r   B. testing the significance of r   C. both a and b
    D. neither a nor b

29. Which one is not a non- parametric test
    A. chi square test   B. t – test   C. sign test   D. rank test

30. Analysis of variance utilises
    A. F – test   B. chi square test   C. Z – test   D. t – test

31. The idea of product moment correlation was given by
    A. Fisher   B. Francis   C. Karl pearson   D. Spearman

32. When r = 1 the correlation is
    A. positively perfect   B. perfect   C. good   D. normal

33. An analysis of covariance between two or more variable is
    A. regression   B. time series   C. correlation   D. coefficient of variation

34. Control chart is:
    i. Process monitoring tool
    ii. Process control tool
    iii. Process planning tool
    A. i only   B. i & ii   C. i, ii & iii   D. None of the above

35. Estimation is possible only in case of a:
    A. Par a meter   B. Sample   C. Random sample   D. Population

36. Estimation is of two types:
    A. One sided and two sided   B. Type I and type II   C. Point estimation
    and interval estimation

D. Biased and unbiased

37. The level of confidence is denoted by

   A. α   B. β   C. 1 – α   D. 1 - β

38. Using the terminology of statistical control, the variation within a stable system .

   A. is random variation.   B. results from common causes.
   C. is predictable within a range.   D. a and b.   E. all of the above.

39. Using the terminology associated with statistical process control (SPC), the variation within a stable system is

   A. predictable within a range of values.   B. controllable. C. in control. D. a and b.   E. a and c.

40. Cluster sampling, stratified sampling and systematic sampling are types of

   A. direct sampling   B. indirect sampling   C. random sampling   D. non random sampling

41. Quota sampling, judgment sampling and convenience sampling are classified as types of

   A. random sampling   B. non random sampling   C. direct sampling   D. indirect sampling

42. Type of sampling In which each element of population has equally likely chance of occurrence in a random sample is classified as

   A. regular and irregular sampling   B. error free sampling   C. inertia sampling   D. simple random sampling

43. What is the advantage of using SPSS over calculating statistics by hand?

   A. It equips you with a useful transferable skill.
   B. It reduces the chance of making errors in your calculations.
   C. Many researchers use SPSS as it is a recognised software package.
   D. All of the above.

44. What does the operation "Recode Into Different Variables" do to the data?

   A. Replaces missing data with some random scores.
   B. Reverses the position of the independent and dependent variable on a graph.
   C. Redistributes a range of values into a new set of categories and creates a new variable.
   D. Represents the data in the form of a pie chart.

45. Malcolm Baldrige national quality award is for (MBNQA)

   A. Total Quality Management   B. International Standard Organization
   C. Total Productive Maintenance   D. Total Quality Control

46. TQM & ISO both focuses on

  A. Customer   B. Employee   C. Supplier   D. All of the above

47. Quantitative tools of TQM are

  A. fishbone diagram   B. paretto diagram   C. both a and b   D. none

48. Examples of control charts

  A. mean chart   B. range chart   C. pie chart   D. both a and b

49. Size of samples are

  A. 29 or less   B. 30 or more   C. 50 or less   D. 20 or less

50. When the estimated value is a single specific value of population, it is called

  A. point estimate   B. time estimate   C. interval estimate   D. none