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Assignment for DSSSB Statistical Assistant Exam 2023

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Statistical Assistant

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1. Measures of central tendency for a given set of observations measures
   a. The scatterness of the observations
   b. The central location of the observations
   c. Both (a) and (b)
   d. None of these.
2. For open-end classification, which of the following is the best measure of central tendency?
   a. AM b. GM
   c. Median d. Mode
3. The presence of extreme observations does not affect
   a. AM b. Median
   c. Mode d. Any of these.
4. In case of an even number of observations which of the following is median?
   a. Any of the two middle-most value
   b. The simple average of these two middle values
   c. The weighted average of these two middle values
   d. Any of these
5. Which one of the following is not uniquely defined?
   a. Mean b. Median
   c. Mode d. All of these
6. For a moderately skewed deistribution, which of the following relationship holds?
   a. Mean - Mode = 3 (Mean - Median)
   b. Median - Mode = 3 (Mean - Median)
   c. Mean - Median = 3 (Mean - Mode)
   d. Mean - Median = 3 (Median - Mode)
7. Which of the following results hold for a set of distinct positive observations?
   a. AM $\geq$ GM $\geq$ HM
   b. HM $\geq$ GM $\geq$ AM
   c. AM > GM > HM
   d. GM > AM > HM
8. Quartiles are the values dividing a given set of observations into
   a. Two equal parts b. Four equal parts
   c. Five equal part d. None of these
9. Which of the following measure(s) possesses (Possess) mathematical properties?
   a. AM b. GM
   c. HM d. All of these
10. Which of the following measures of central tendency is based on only fifty percent of the central values?
    a. Mean b. Median
    c. Mode d. Both (a) and (b)
11. If there are 3 observation 15, 20, 25 then the sum of deviation of the observation from their AM is
    a. 0 b. 5
    c. -5 d. None of these
12. What is the modal value for the numbers 5, 8, 6, 4, 10, 15, 18, 10?
    a. 18 b. 10
    c. 14 d. None of these
13. If the AM and GM for two numbers are 6.50 and 6 respectively then two numbers are
    a. 6 and 7 b. 9 and 4
    c. 10 and 3 d. 8 and 5
14. If the AM and HM for two numbers are 5 and 3.2 respectively then the GM will be
    a. 16.00 b. 4.10
    c. 4.05 d. 4.00
15. What is the value of the fist quartile for observations 15, 18, 10, 20, 23, 28, 12, 16?
    a. 17 b. 16
    c. 12.75 d. 12
16. The third decile for the numbers 15, 10, 20, 25, 18, 11, 9, 12, is
    a. 13 b. 10.70
    c. 11 d. 11.50
17. If there are two groups containing 30 and 20 observations and having 50 and 60 as artithmetic means, then the combined arithmetic mean is
    a. 55 b. 56
    c. 54 d. 52
18. If there are two groups with 75 and 65 as harmonic means and containing 15 and 13 observation then the combined HM is given

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a. 65 b. 70.36
c. 70 d. 71

19. What is the HM of . 1, 1/2, 1/3,..... 1/n?

a. n b. $2n$
c. $\frac{2}{(n+1)}$ d. $\frac{n(n+1)}{2}$

20. If a variable assumes the values 1, 2, 3.....5 with frequencies as 1, 2, 3.....5, then what is the AM?

a. $\frac{11}{3}$ b. 5
c. 4 d. 4.50

21. Two variables x and y are given by y = 2x - 3. If the median of x is 20, what is the median of y?

a. 20 b. 40
c. 37 d. 35

22. If x and y are related by x - y - 10 = 0 and mode of x is known to be 23, then the mode of y is

a. 20 b. 13
c. 3 d. 23

23. If x and y are related by x - y - 10 = 0 and mean of x is known to be 23, then the mean of y is

a. 20 b. 13
c. 3 d. 23

24. If the AM and GM for 10 observations are both 15, then the value of HM is

a. Less than 15
b. More than 15
c. 15
d. Can not be determined.

25. In a symmetric distribution

a. mean = median = mode
b. mean > median < mode
c. mean > median > mode
d. mean < medain < mode

26. If modal value is not clear in a distribution, it can be ascertained by the method of

a. grouping
b. guessing
c. summarizing
d. trial and error

27. The middle value of an ordered series is called

a. 2nd quartile
b. 5th decile
c. 50th percentile
d. all the above

28. For percentiles, the total number of partition values are

a. 10 b. 59
c. 100 d. 99

29. The first quartile divides a frequency destribution in the ration

a. 4 : 1 b. 1 : 4
c. 3 : 1 d. 1 : 3

30. Median can be located graphically with the help of

a. Histogram
b. ogives
c. bar diagram
d. scatter diagram

31. Sixth deciles is same as

a. median
b. 50the percentile
c. 60th percentile
d. first quartile

32. What percentage of values lies between 5th and 25th percentiles?

a. 5% b. 20%
c. 30% d. 75%

33. Which of the following statements is correct?

a. Two distributions may have identical measures of central tendency and dispersion.
b. Two distributions may have the identical measures of central tendency but different measures of dispersion.
c. Two distributions may have the different measures of central tendency but identical measures of dispersion.
d. All the statments (a), (b) and (c).

34. Dispersion measures

a. The scatternmess of a set of observations
b. The concentration of a set of observations
c. Both (a) and (b)
d. Neither (a) and (b).

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35. When it comes to comparing two or more distributions we consider
    a. Absolute measures of disperstion
    b. Relative measures of dispersion
    c. Both (a) and (b)
    d. Either (a) or (b).
36. Which measure of dispersion is the quickest to compute?
    a. Standard deviaiton
    b. Quartile deviaiton
    c. Mean deviation
    d. Rnage
37. Which measures of dispersions is not affected by the presence of extreme observations?
    a. Range
    b. Mean deviaiton
    c. Standard deviaiton
    d. Quartile deviaiton
38. Which measure of dispersion is based on the absolute deviaitons only?
    a. Standard deviaiton
    b. Mean deviaiton
    c. Quartile deviaiton
    d. Range
39. Which measure of dispersion is based on all the observations?
    a. Mean deviaiton
    b. Standard deviation
    c. Quartile deviaition
    d. (a) and (b) but not (c)
40. The appropriate measure of dispersions for open - end classification is
    a. Standard deviation
    b. Mean deviation
    c. Quartile deviation
    d. All these measures
41. The most commonly used measure of dispersion is
    a. Range
    b. Standard deviation
    c. Coefficient of variation
    d. Quartile deviation.
42. A shift of origin has no impact on
    a. Range b. Mean deviaiton
    c. Standard deviation
    d. All these and quartile deviation.
43. The standard deviation of, 10, 16, 10, 16, 10, 10, 16, 16 is
    a. 4 b. 6
    c. 3 d. 0
44. For any two numbers SD is always
    a. Twice the range
    b. Half of the range
    c. Square of the range
    d. None of these.
45. If all the observations are increased by 10, then
    a. SD would be increased by 10
    b. Mean deviation would be increased by 10
    c. Quartile deviation would be increased by 10
    d. All these three remain unchanged.
46. If all the observations are multiplied by 2, then
    a. New SD would be also multiplied by 2
    b. New SD would be half of the previous SD
    c. New SD would be increased by 2
    d. New SD would be decreased by 2
47. If Rx and Ry denote ranges of x and y respectively where x and y are related by $3x + 2y + 10 = 0$, what would be the relation between x and y?
    a. Rx = Ry b. 2 Rx = 3 Ry
    c. 3 Rx = 2 Ry d. Rx = 2 Ry
48. If the range of x is 2, what would be the range of $-3x + 50$?
    a. 2 b. 6
    c. -6 d. 44
49. The coefficient of mean deviaiton about mean for the first 9 natural numbers is
    a. 2/9 b. 80
    c. 4/9 d. 50
50. If the relation between x and y is $5y - 3x = 10$ and the mean deviaiton about mean for x is 12, then the mean deviation of y about mean is
    a. 7.20 b. 6.80
    c. 20 d. 18.80

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51. If the mean and SD of x are a and b respectively, then the SD of $\frac{x - a}{b}$ is
a. -1 b. 1
c. ab d. a/b.

52. If the SD of x is 3, what us the variance of $(5 - 2x)$?
a. 36 b. 6
c. 1 d. 9

53. If x and y are related by $2x + 3y + 4 = 0$ and SD of x is 6, then SD of y is
a. 22 b. 4
c. 5 d. 9

54. If x and y are related as $3x + 4y = 20$ and the quartile deviaiton of x is 12, then the quartile deviation of y is
a. 16 b. 14
c. 10 d. 9

55. If the SD of the 1st n natural numbers is 2, then the value of n must be
a. 2 b. 7
c. 6 d. 5

56. The normal curve is ____
a. Bell-shaped
b. U-shaped
c. J-shaped
d. Inverted J-shaped

57. For a negatively skewed distribution, the correct inequality is
a. Mode < median
b. Mean < median
c. mean < mode
d. None of the above

58. In case of positive skewed distribution, the extreme values lie in the
a. Left tail b. right tail
c. Middle d. any where

59. If $\overline{X} = 50$, mode = 48, $\sigma = 20$, the coefficient of skewness shall be =
a. 0.4 b. 0.1
c. 0.3 d. None of these

60. If $\beta_2 = 3$ the distribution is called -
a. Mesokurtic
b. Leptokurtic
c. Pletykurtic
d. None of these

61. The right-hand tail of a frequency distribution is found to the mirror image of the left-hand tail. The distribution is
a. positively skewed
b. negatively skewed
c. asymmetric
d. symmetric

62. When coefficient of of skewness is zero the distribution is
a. J-shaped
b. Ushaped
c. symmetrical
d. L-shaped

63. When $\beta_2 < 3$ the distribution is
a. Leptokurtic
b. Platokurtic
c. Mesokurtic
d. None of these

64. In a negatively skewed distribution
a. Mode > Median > Mean
b. Median > Mode > Mean
c. Mode < Median < Mean
d. None of these

65. Karl Pearson's coefficient of skewness is... Bowley's coefficient of skewness for any skewed distribution.
a. equal to
b. less than
c. greater than
d. not related to

66. When coefficient of skewness is negative
a. $Q_2 + Q_3 = 2Q_1$
b. $Q_3 + Q_1 < 2Q_2$
c. $Q_3 + Q_1 > 2Q_2$
d. $Q_3 + Q_2 < 2Q_1$

67. If $\beta_2 > 3$ the distribution is called -
a. Mesokurtic
b. Leptokurtic
c. Pletykurtic
d. None of these

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68. If X and Y are two variates, there can be at most:
(a) one regression line
(b) two regression lines
(c) three regression lines
(d) an infinite number of regression lines

69. Regression equation is also named as:
(a) prediction equation
(b) estimating equation
(c) line of average relationship
(d) all the above

70. In the regression line $Y = \alpha + \beta X$, β is called the:
(a) slope of the line (b) intercept of the line
(c) neither (a) nor (b) (d) both (a) and (b)

71. In the regression line $Y = \beta_0 + \beta_1 X$, β_0 is the:
(a) slope of the line (b) intercept of the line
(c) both (a) and (b) (d) neither (a) nor (b)

72. If β_{YX} and β_{XY} are two regression coefficients, they have:
(a) same sing (b) opposite sign
(c) either same or opposite signs
(d) nothig can be said

73. If $\beta_{YX} > 1$, then β_{XY} is:
(a) less than 1 (b) greater than 1
(c) equal to 1 (d) equal to 0

74. If $\beta_{YX} < 1$, then β_{XY} is:
(a) less than 1 (b) greater than 1
(c) equal to 1 (d) none of above

75. If X and Y are independent, the value of regression coefficient β_{YX} is equal to:
(a) 0 (b) 1
(c) ∞ (d) any positive value

76. The lines of regression intersect at the point:
(a) (X,Y) (b) $(\overline{X}, \overline{Y})$
(c) (0,0) (d) (1,1)

77. The coordinates $(\overline{X}, \overline{Y})$ 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

78. If $r = 1$, the angle between the two lines of regression is:
(a) zero degree (b) ninety degree
(c) sixty degree (d) thirty degree

79. If $r = 0$, the lines of regression are:
(a) coincident (b) parallel
(c) prependicular to each other
(d) none of the above

80. If $r = 0$, the angle between the two lines of regression is:
(a) zero degree (b) ninety degree
(c) sixty degree (d) thirty degree

81. If the two lines of regression are perpendicular to each other, the relation between the two regression coefficients is:
(a) $\beta_{YX} = \beta_{XY}$ (b) $\beta_{YX} \cdot \beta_{XY} = 1$
(c) $\beta_{YX} \le \beta_{XY}$ (d) none of above.

82. If the two lines of regression are coincident, the relation between the two regression coefficients is:
(a) $\beta_{YX} = \beta_{XY}$ (b) $\beta_{YX} \cdot \beta_{XY} = 1$
(c) $\beta_{YX} \le \beta_{XY}$ (d) $\beta_{YX} = -\beta_{XY}$

83. Regression coefficient is independent of change of:
(a) origin
(b) scale
(c) both origin and scale
(d) neither origin nor scale

84. If a constant 50 is subtracted from each of the value of X and Y, the regression coefficient is:
(a) reduced by 50
(b) $\frac{1}{50}$ th of the original regression coefficient
(c) increased by 50
(d) not changed

85. If each observation in the set of values (X,Y) is divieded by 100, the regression coefficient of Y on X is:
(a) increased by 100
(b) decreased by 100
(c) $\frac{1}{100}$ th of b_{YX}
(d) none of the above

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86. If each of X variable is divided by 5 and of Y by 10, then b'_{YX} by coded values is:
(a) same as b_{YX} (b) half of b_{YX}
(c) twice b_{YX} (d) none of the above

87. If each value of X is divided by 2 and of Y is multiplies by 2, then b'_{YX} by coded value is:
(a) same as b_{YX} (b) twice of b_{YX}
(c) four times of b_{YX} (d) eight times of b_{YX}

88. If from each value of X and Y, constant 25 is subtracted and then each value is divided by 10, the coded b'_{YX} is:
(a) same as b_{YX} (b) $2\frac{1}{2}$ times of b_{YX}
(c) 25 times of b_{YX} (d) 10 times of b_{YX}

89. If each value of X is multiplied by 10 and of Y by 20, b_{XY}, the regression coefficient by coded values is:
(a) same as b_{XY} (b) half of b_{XY}
(c) four time of b_{XY} (d) one-fourth b_{XY}

90. If from each value of Y, a constant value 15 is subtraced and then divided by 2, the regression coefficient b_{XY} through coded value is:
(a) half of b_{XY}
(b) twice of b_{XY}
(c) same as b_{XY}
(d) none of the above

91. The random function $g(x) = E\{Y / X = x\}$ is called the:
(a) regression curve of Y on X
(b) regression line of Y on X
(c) regression function Y on X
(d) none of the above

92. The function relation Y=E (Y/X= x) is called:
(a) regression line of Y on X
(b) regression function of Y on X
(c) regression curve of the mean of Y on X
(d) all the above

93. If the correlation coefficient between the variables X and Y is p, the correlation coefficient between X^2 and Y^2 is:
(a) p (b) p^2
(c) 0 (d) 1

94. If the correlation between the two variables X and Y is negative, the regression cofficient of Y on X is:
(a) positive (b) negative
(c) not certain (d) none of the above

95. Given the two lines of regression as, 3X- 4Y + 8 = 0 and 4X - 3Y=1, the means of X and Y are:
(a) $\overline{X} = 4, \overline{Y} = 5$ (b) $\overline{X} = 3, \overline{Y} = 4$
(c) $\overline{X} = \frac{4}{3}, \overline{Y} = \frac{5}{4}$ (d) none of the above

96. The formula for simple correlation coefficient between the variables X and Y with usual notations is:
(a) $\text{cov}(X, Y) / \sqrt{V(X)V(Y)}$
(b) $\mu_{XY} / \sqrt{\mu_{XX}\ \mu_{YY}}$
(c) $\sigma_{XY} / \sigma_X \sigma_Y$
(d) all the above

97. The range of simple correlation coefficient is:
(a) 0 to ∞ (b) - ∞ to ∞
(c) 0 to 1 (d) -1 to 1

98. If $p = 1$, the relation between the two variables X and Y is:
(a) Y is proportional to X
(b) Y is inversely proportional to X
(c) Y is equal to X (d) none of the above

99. If $p_{XY} = 0$, the variable X and Y are:
(a) linearly related (b) independent
(c) not linearly related (d) none of the above

100. If $p_{XY} = -1$, the relation between X and Y is of the type:
(a) when Y increases, X also increases,
(b) when Y decreases, X also decreases
(c) X is equal to -Y
(d) when Y increases, X proportionately decreases

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