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DEPARTMENT OF STATISTICS

Class:-B.Sc-I

Paper-I (Descriptive Statistics-I)

Question Bank

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Q. 1) Choose a correct alternative for each of following.

1) The word 'Statistics' is used for……..
   (A) Singular (B) Plural
   (C) Singular & Plural both (D) None of these
2) Sampling is inevitable in the situation(s):
   (A) Blood test of a person
   (B) When the population is infinite
   (C) Testing of life of dry battery cells
   (D) All the above
3) The number of possible samples of size n out of N population units with replacement is:
   (A) $\binom{N}{n}$ (B) N^n (C) n^2 (D) $n!$
4) The number of possible samples of size n out of N population units without replacement is:
   (A) $\binom{N}{n}$ (B) N^n (C) n^2 (D) $n!$
5) Annual income of the person is …….
   (A) An attribute (B) A discrete variable
   (C) A continuous variable (D) (B) or (C)
6) The number of observations belonging to a class is called……
   (A) Class frequency (B) Cumulative frequency
   (C) Class width (D) None of these
7) For the mid-value given below
   25, 34, 43, 52, 61, 70
   The first class of the distribution is……..
   (A) 24.5 - 34.5 (B) 25 – 34 (C) 20 – 30 (D) 20.5 – 29.5
8) The classes in which the lower limits or upper limits are not specified is known as……
   (A) Open classes (B) Closed classes
   (C) Open end classes (D) None of these
9) Size of the class interval of the following grouped data is…….
   10-19 20-29 30-39 40-49 50-59
   (A) 10 (B) 9 (C) 4.5 (D) 5
10) In a bar diagram, the base line is……
   (A) Horizontal (B) Vertical

(C) False base line (D) Any of the above

11) Pie charts are shown by……
(A) Dots (B) Lines (C) Circles (D) Pictures

12) From less than type ogive curve we can obtain……
(A) Mean (B) Median (C) Mode (D) All of these

13) Mode can be obtained from …….
(A) Pie diagram (B) Histogram
(C) Less than ogive curve (D) Greater than ogive curve

14) In case of frequency distribution, the heights of bars of a histogram are proportional to……..
(A) Class frequency (B) Class intervals
(C) Frequencies in percentage (D) Frequency densities

15) In case of frequency distribution, the bases of bars of a histogram are equal to……..
(A) Class frequency (B) Class intervals
(C) Frequencies in percentage (D) Frequency densities

16) The method of collecting data from entire population is called…….
(A) Census method (B) Sampling method
(C) Both (A) and (B) (D) None of these

17) The number of observations belonging to a class is called……
(A) Class frequency (B) Cumulative frequency
(C) Class width (D) None of these

18) The data can be measured by using non-numeric notation or unordered symbols in.....
(A) Nominal scale (B) Interval scale (C) Ordinal scale (D) Ratio scale

19) If from each observation a constant value 30 is subtracted then the mean of the set is.....
(A) Increased by 30 (B) Decreased by 30
(C) Not affected (D) 30 times the original

20) Mode is……..
(A) Middle most value (B) The minimum value
(C) Most frequent value (D) The maximum value

21) In the case of finding average speed the measure to be used is……...
(A) Mean (B) Geometric Mean
(C) Harmonic Mean (D) Median

22) For a positively skewed distribution the relation between mean, median and mode is.....
(A) Mean > Median > Mode (B) Mean = Median = Mode
(C) Mean < Median < Mode (D) None of these

23) All observations are increased by 5 then median becomes……
(A) Remains same (B) Increased by 5 (C) Decreased by 5 (D) None of these

24) Empirical relation between mean, median and mode is…….
(A) Mean - Mode = 3 (Mean - Median)
(B) Mode - Mean = 3 (Mean - Median)

(C) Mean - Median 3 (Mean - Mode)
(D) None of these

25) For any distribution.....
(A) H.M. ≤ G.M. ≤ A.M. (B) H.M. ≤ A.M. ≤ G.M.
(C) G.M. ≤ H.M. ≤ A.M. (D) H.M. = G.M. = A.M.

26) The sum of absolute deviations of observations taken from median is always……..
(A) Zero (B) One (C) Minimum (D) Maximum

27) Graphically we can determine ……..using ogives.
(A) Standard deviation (B) Quartile deviation
(C) Mean deviation (D) Arithmetic mean

28) All the items are taken into consideration in.....
(A) Mode (B) Standard deviation
(C) Quartile deviation (D) None of these

29) To compare consistency of observations among two sets of data, we can use as the most efficient measure of dispersion.
(A) Range (B) Quartile deviation
(C) Mean deviation (D) Coefficient of variation

30) If each observation in the set is divided by 15 then the standard deviation of the new set s…….of original standard deviation.
(A) 15 times (B) (1/15) times (C) 225 times (D) (1/225) times

31) The sum of absolute deviations of observations taken from……. is always minimum.
(A) Mean (B) Median (C) Mode (D) None of these

32) If the coefficient of variation and standard deviation of a series are 60% and 20 respectively then the value of the arithmetic mean is…….....
(A) 100/6 (B) 100/3 (C) 3/100 (D) 6/100

33) If the Standard deviation of X is 10 then the standard deviation of 5X-10 is……..
(A) 10 (B) 15 (C) 40 (D) 50

34) S.D. is affected by.....
(A) Change of origin only
(B) Change of scale only
(C) Change of origin and change of scale
(D) Change of scale but not by change of origin

35) If we want to know dispersion quickly we calculate…….....
(A) AM (B) Range (C) Median (D) Geometric mean

36) The measure of dispersion that is not based on all the observation is……..
(A) MD about mean (B) Range
(C) Standard deviation (D) None of these

37) If each value is increased by 10 then the standard deviation is…....
(A) Increased by 10 (B) Decreased by 10
(C) Not affected (D) None of these

38) The coefficient of variation of a frequency distribution having standard deviation 10 and mean 25 is.....
(A) 10 (B) 25 (C) 40 (D) 50

39) For open end classes an appropriate measure of dispersion to be used is…….
(A) Range (B) Quartile deviation
(C) Standard deviation (D) All of these

40) The distribution is symmetric if ……. moments are zero.
(A) Even ordered central (B) Odd ordered central
(C) Odd ordered raw (D) All raw and central moments

41) If the mean, median and mode of distribution are 5, 6, 7 respectively then the distribution is.....
(A) Symmetric (B) Negatively skewed
(C) Positively skewed (D) None of these

42) For a symmetric distribution…….
(A) $Q_3 - Q_2 < Q_2 - Q_1$ (B) $Q_3 - Q_2 > Q_2 - Q_1$
(C) $Q_3 - Q_2 = Q_2 - Q_1$ (D) None of these

43) If the third central moment is zero then.....
(A) $Q_1 = 0$ (B) $\beta_2 = 0$
(C) Frequency distribution is symmetric (D) Only (A) and (B) are true

44) For negatively skewed distribution the correct relation between mean, median and mode is.....
(A) Mean < Median < Mode (B) Mode < Median < Mean
(C) Median < Mean < Mode (D) Median > Mean > Mode

45) Two distributions are of the same size and same mean, but different standard deviations, 6 and 10. Then their combined standard deviation is.....
(A) 16 (B) 4 (C) 60 (D) 8

46) The first moment about the origin is…….
(A) Standard deviation (B) Mean
(C) Variance (D) Mean deviation

47) The second central moment is always…….
(A) Standard deviation (B) Mean
(C) Variance (D) Mean deviation

48) For any frequency distribution the first ordered central moment is.....
(A) 1 (B) Variance (C) Zero (D) Mean

49) If for a distribution mean = 1, variance = 3, $\mu_3 = 0$ and $\mu_4 = 27$ then the given distribution is.....
(A) Positively skewed (B) Negatively skewed
(C) Symmetric (D) Either positively or negatively skewed

50) When Bowley's coefficient of skewness is ±1 then a quartile is equal to…….
(A) Mode (B) Mean (C) Median (D) Geometric Mean

Q. 2) Long answer questions.

1) Define the terms with example
i) Class Interval ii) Class Limit iii) Class Width iv) Class Frequency
v) Class marks.

2) Explain nominal, ordinal, interval & ratio scale of measurement.
3) Define tabulation and discuss about parts of table.
4) Define median and derive the formula of the median for grouped frequency distribution.
5) Define mode and derive the formula of the mode for grouped frequency distribution.
6) Define A.M, G.M, and H.M. for two observation show that $H.M \leq G.M \leq A.M$.
7) Define mean deviation. State and prove minimal property of mean deviation.
8) Define Standard deviation and derive the formula for combined standard deviation for two sets.
9) Define raw and central moments. Express first four central moments in terms of raw moments.
10) Discuss Kurtosis with their types, measurement & interpretation.

Q. 3) Short answer questions.

1) Explain the term Population & Sample.
2) Discuss the advantages of sample survey over census survey.
3) Explain Simple random sampling with replacement and without replacement.
4) Discuss Stratified random sampling in brief.
5) Discuss Systematic random sampling in brief.
6) Explain primary and secondary data.
7) What do you mean by (i) Inclusive (ii) Exclusive method of class interval?
8) Explain Cumulative frequency distribution with their types.
9) Explain the construction of Histogram.
10) Explain the construction of frequency polygon & frequency curve.
11) Explain the construction of ogive curves.
12) What are requisites of a good average?
13) Define Arithmetic mean and state its properties.
14) Define arithmetic mean and what is the effect of change of origin and scale on arithmetic mean?
15) Define quartiles, deciles and percentiles.
16) Discuss range and quartile deviation.
17) Discuss the effect of origin and scale on standard deviation.
18) Find the mean and the variance of the distribution which takes value 1, 2, 3,…., n each with frequency unity.
19) Define Central moment. What is effect of change of origin and scale on central moments?
20) What is the purpose of applying Sheppard's correction for moments? Give the formulae for first four corrected central moments.
21) Write a short note on Karl Pearson's coefficient of skewness.
22) Write a short note on Bowley's coefficient of skewness.
23) Write a short note on Pearsonian coefficient of skewness based on moments.

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