

MODEL QUESTION

Class - XI : Statistics : 70 Marks : 2020-2021

Group-A : Each Question Carries 1 Mark : $1 \times 20 = 20$

A) Answer the following question in a Word / Numeral complete sentence : 1×6

- 1) Define the term 'variable'.
- 2) Find the A.M of the numbers 3, 5, 7, ... 47.
- 3) For some symmetrical distribution $Q_1 = 24$, and $Q_3 = 42$, Find Median.
- 4) The three quartiles of a variable x are 5, 12 and 17. Find its Quartile Deviation.
- 5) If S. D of x is 6, find the S.D of $10-3x$.
- 6) When $\text{var}(x)=0$, what can you say about the set of observations ?

Fill up the blanks : (7 – 14) : 1×8

- 7) The quickest measure of dispersion is _____.
- 8) The empirical relation connecting Mean, Median and Mode is _____.
- 9) The most useful measure of dispersion is _____.
- 10) For two observations only, if A.M and G.M are known, then H.M may be obtained by the relation _____.
- 11) The most widely used relative measure of dispersion is _____.
- 12) Find the mean if C.V= 5% and variance = 4
- 13) Define the term 'frequency density'.
- 14) Find the 10th term of the following G.P {2, 6, 18, 54, ...}

State True / False (15-17) : 1×6

- 15) Mode is the value of the largest observation in the series.
- 16) A. M is unit free.
- 17) "Mesokurtic" distribution has a moderate peak.
- 18) What do you mean by standardized variable ?
- 19) What's the Pearson's 1st measure of skewness ?
- 20) In a G.P series the sum of 1st 6 terms is 9 times of the sum of 1st 3 terms. Then find the common ratio.

Group-B : Each Question Carries 3 Marks : $3 \times 5 = 15$

Answer the following questions

- 21) Explain the different parts of a table.
- 22) Prove that for any real quantity, $AM \geq GM \geq HM$
- 23) Find the mean deviation of 7, 9, 14, 24 and 26 measured from their median.
- 24) The sum of n terms of two A. Ps are in the ratio $4n : 3n-1$. Find the ratio of their fourth terms.
25. The first four moments of a distribution about the value 4 of the variable are -1.5 , 17 , -30 and 108 . Find the moments about mean, B_1 and B_2 .

Group-C : Each Question Carries 4 Marks : 5x7=35

26. Distinguish between census and sample survey and discuss their comparative merits and demerits.
27. Prove that the sum of squares of deviation is minimum when deviations are measured from the mean.
28. In the expansion of $(1+x)^{2n}$, the coefficient of 2nd, 3rd and 4th term are in A.P.
prove that $2n^2 - 9n + 7 = 0$
29. Find the coefficient of x in the expansion of $(1-2x^3 + 3x^5) \left\{1 + \frac{1}{x}\right\}^{10}$
30. State and prove the Cauchy Swartz inequality.
31. Define the primary and secondary data. Discuss the different methods of collecting primary data.
32. Prove that the standard deviation is independent of any change of origin but is dependent as change of scale.