Note: You have four choices for each objective type question as A, B, C and D. The choice which you think is correct, fill that circle in front of that question number. Use marker or pen to fill the circles. Cutting or filling two more circles will result in zero mark in that question. Attempt as many questions as given in objective type question paper and leave others blank.

1- 1-   Random numbers are generated by _____ methods.

    (A) 1   (B) 2   (C) 3   (D) 4

2- $^3P_2$ is equal to

    (A) 3   (B) 5   (C) 6   (D) 1

3-   The distribution is symmetrical, then b_1 is

    (A) negative   (B) positive   (C) zero   (D) 3

4-   The graph of frequency distribution is called

    (A) histogram   (B) historigram   (C) ogive   (D) f. curve

5-   Hypergeometric distribution has parameters

    (A) 1   (B) 2   (C) 3   (D) 4

6-   If $E(X) = 1.6$ then $E(5x + 10) =$ _____

    (A) 18   (B) 15   (C) 10   (D) 05

7-   The best year for base year is

    (A) first year   (B) last year   (C) sound economic year   (D) 3rd year

8-   The types of dispersion are

    (A) 2   (B) 3   (C) 4   (D) 5

9-   The mean of binomial distribution is

    (A) nPq   (B) nP   (C) $\sqrt{nPq}$ (D) $\sqrt{nP}$

10-   The standard deviation from mean is always

    (A) negative   (B) positive   (C) zero   (D) fractional

11-   Statistics is a word of _____ language.

    (A) Latin   (B) English   (C) French   (D) German

12-   The mean of 10 numbers is 9, then sum of these numbers is

    (A) 10   (B) 70   (C) 90   (D) 80

13-   The most suitable average for index number is

    (A) A.M.   (B) G.M.   (C) H.M.   (D) median

14-   The sum of values divided by their numbers is called

    (A) mode   (B) median   (C) mean   (D) G.M.

15-   When the coin is tossed the sample space is

    (A) [H, H]   (B) [T, T]   (C) [H , T]   (D) none of these

16-   The most popular value of the data set is called

    (A) A.M.   (B) median   (C) mode   (D) G.M.

17-   Mid-point of the group 5.5 --- 7.5 is

    (A) 6   (B) 6.5   (C) 7   (D) 7.5

Note: Section I is compulsory. Attempt any Three (3) questions from Section II.

SECTION I   GUJ-22

2. **Write short answers to any EIGHT (8) questions:** $(2 \times 8 = 16)$

   i-   Differentiate between parameter and statistic.

   ii-   Distinguish between primary data and secondary data.

   iii-   Given $\ell = 60$, $h = 10$, $f = 20$, $n = 80$ and $c = 30$. Find median.

   iv-   If $A = 98$, $h = 5$, $\Sigma fu = -30$ and $\Sigma f = 30$. Find $\overline{X}$

   v-   Define the term average.

   vi-   What do you understand by combined arithmetic mean?

   vii-   What are the merits of mode?

   viii-   Describe harmonic mean and write down the formula to calculate it.

   ix-   Given $\Sigma P_0 = 1397$, $\Sigma P_1 = 1804$ and $\Sigma P_2 = 2265$. Calculate simple aggregative price index number.

   x-   Given $W = 19, 23, 8, 17, 20$ and $I = 100, 136, 129, 144, 155$. Find consumer price index number.

   xi-   Define price relative and write down its formula.

   xii-   Describe Laspeyre's price index number.

3. **Write short answers to any EIGHT (8) questions:** $(2 \times 8 = 16)$

   i-   What is meant by cummulative frequency?

   ii-   Define tabulation.

   iii-   What do you understand by dispersion?

   iv-   If $n = 15$, $\Sigma X = 480$, $\Sigma X^2 = 15735$. Find the C.V.

   v-   Define moments.

   vi-   Write the formula's of Karl's Pearson's coefficient of skewness.

   vii-   Given that $Q_1 = 89$, $Q.D = 10.875$, then find the value of Q_3.

   viii-   Define range & its coefficient.

   ix-   Define a Null OR empty set.

   x-   If $P(A) = 0.2$, $P(B) = 0.4$ $P(A/B) = 0.375$, then $P(A \cap B) = ?$

   xi-   Find Bowley's coefficient of skewness if $Q_1 = 95$, $Q_3 = 84$ and median $= 81$

   xii-   Solve: $^{52}C_2$

4. **Write short answers to any SIX (6) questions:** $(2 \times 6 = 12)$

   i-   Define random variable. Also give an example.

   ii-   Define continuous random variable. Also give an example.

   iii-   Define discrete probability distribution.

   iv-   If $var(x) = 2$. Find $var(3x + 2)$

   v-   Is it possible to have a binomial distribution with mean $= 5$ and S.D. $= 4$?

   vi-   If $E(X) = 2$ and $E(X^2) = 10$. Calculate coefficient of variation.

   vii-   Define binomial experiment.

   viii-   Define hypergeometric distribution.

   ix-   Write down the formulae of computing mean and variance of hypergeometric distribution.

                   (Turn over)

SECTION II

5- (a) A man gets rise of 10 % in salary at the end of 1st year of job, a further rise of 20 % and 25 % at the end of 2nd and 3rd years respectively. To what average annual percent increase is this?   4

(b) The reciprocals of 11 values of X are given below. Find arithmetic mean: 4

0.0500, 0.0454, 0.0400, 0.0333, 0.0285, 0.0232,

0.0213, 0.0200, 0.0182, 0.0151, 0.0143

6- (a) Compute the coefficient of variation: 4

No. of Children	0	1	2	3	4	5
No. of Families	8	10	15	20	13	4

(b) Calculate first four moments about mean from the following data: 4

45. 32, 37, 46, 39, 36, 41, 48, 36

7- (a) Construct index number for 1963 assuming 1953 as base period by   4
(i) Laspeyre's formula   (ii) Paasche's formula

Commodity	1953		1963	
	Price	Quantity	Price	Quantity
A	2	50	10	40
B	3	10	8	5
C	4	5	4	5

(b) From a well-shuffled pack of 52 cards, a card is drawn at random. What is the probability that it is   4

(i) a card of diamond   (ii) an ace

(iii) a pictured card   (iv) a black card

8- (a) Given $P(x) = K\begin{pmatrix} 4 \\ x \end{pmatrix}$ and $x = 0, 1, 2, 3, 4$ Find the value of K.   4

(b) Given that $E(X^2) = 400$ and $S.D.(X) = 12$ Find $E(X)$ and C.V.   4

9- (a) Out of 800 families with 5 children each; how many would you expect to have at least 3 boys?   4

(b) A committee of size 5 is to be selected at random from 3 women and 5 men. Find complete probability distribution for number of women in the committee.   4

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