QUESTION NO. 1

1 Statistical results are

(A) exact   (B) always true   (C) not true   (D) true on average

2 If C is a constant, then $\sum_{i=1}^{8} C$ is equal to

(A) $8 + C$ (B) $8 - C$ (C) $8C$ (D) $\dfrac{8}{C}$

3 The number of items of data in a class is called

(A) Frequency   (B) Variable   (C) Parameter   (D) Mid point

4 Ogive can be used for the calculation of

(A) Mean   (B) Median   (C) Mode   (D) Harmonic mean

5 Mode of the series 10 , 13 , 12 , 10 , 20 , 11 , 15 , 10 , 14 , 12 is

(A) 10   (B) 12   (C) 15   (D) 20

6 If $\sum_{i=1}^{10} (X_i - 50) = 100$, then sample mean $\bar{X}$ will be

(A) 10   (B) 50   (C) 60   (D) 100

7 Second moment about mean is

(A) Zero   (B) Variance   (C) Range   (D) Mode

8 Mean deviation of values 6 , 6 , 6 , 6 , 6 , 6 is

(A) 36   (B) 6   (C) 1   (D) 0

9 Cost of living index numbers are

(A) Simple index   (B) Composite index   (C) Chain index   (D) Unweighted index

10 The most suitable average in chain base method is

(A) Median   (B) Mode   (C) Arithmetic mean   (D) Geometric mean

11 The orderly arrangement of units is called

(A) Permutation   (B) Combination   (C) Probability   (D) Factorial

12 A set of all possible outcomes of an experiment is called

(A) Combination   (B) Sample point   (C) Sample space   (D) Simple event

13 A discrete probability function $f(x)$ is always

(A) Non-negative   (B) Negative   (C) One   (D) Zero

14 The appropriate graph of probability density function is

(A) Polygon   (B) Curve   (C) Histogram   (D) Historigram

15 In a Bernoulli trial the experiment is performed

(A) Once   (B) Twice   (C) Thrice   (D) More than once

16 The parameters of the binomial distribution are

(A) n and x   (B) p and x   (C) p and q   (D) n and p

17 In a hypergeometric distribution $N = 6$, $n = 4$ and $K = 3$, then mean is equal to

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

QUESTION NO. 2 Write short answers to any Eight (8) parts of the following 16

(i)	Define Discret Variable.	(ii)	Describe the importance of Statistic in Economics.
(iii)	Write any two characteristics of Statistics.	(iv)	Enlist any two advantages of mode.
(v)	Find Geometric Mean (G.M) If $\sum f \log x = 170.69902$, $\sum f = 80$	(vi)	If median = 65 & mode = 85 Find the value of mean.
(vii)	Define Harmonic Mean (H.M)	(viii)	Find Mode 2 , 5 , 7 , 11 , 3 , 5 , 11 , 13 , 5
(ix)	Given $\sum p_0 q_1 = 402$ & $\sum p_1 q_1 = 481$ Find current year Weighted index number.	(x)	Given $\sum p_1 q_0 = 900$ & $\sum p_0 q_0 = 897$ Find Cost of Living index number.
(xi)	Define Fisher's Ideal index number.	(xii)	Write any two uses of index Number

QUESTION NO. 3 Write short answers to any Eight (8) parts of the following 16

(i)	Define relative frequency.	(ii)	What is one way and two way classification?
(iii)	Differentiate between class limits and class boundaries.	(iv)	Compute coefficient of quartile deviation if $Q_1 = 12$, $Q_3 = 48$
(v)	Define mean deviation.	(vi)	Describe any two demerits of Range.
(vii)	Given $\bar{x} = 12$ and Var(x) = 3 , Find $\bar{y}$ and Var($\bar{y}$) When y = 2x - 3	(viii)	Compute coefficient of variation if mean = 1.2 and S = 1.307
(ix)	Make a sample space if we toss a fair coin three times.	(x)	How many permutations can be formed from the word " STATISTICS ".
(xi)	Give the statement of addition law of probability for two non-mutually exclusive events.	(xii)	If $P(A) = \frac{1}{4}$, $P(B) = \frac{1}{3}$ and $P(A/B) = \frac{1}{6}$, then find $P(B/A)$.

QUESTION NO. 4 Write short answers to any Six (6) parts of the following 12

(i)	Explain the continuous random variable with example.	(ii)	Write the properties of Distribution function.
(iii)	For the probability function $f(x) = A x$, $x = 1, 2, 3$, Compute the value of A.	(iv)	Check whether $f(x) = \frac{x}{10}$, $x = 1, 2, 3, 4$ is a probability density function.
(v)	Find the E(X) for a binomial distribution with n = 6 and $p = \frac{3}{5}$	(vi)	Describe the shape of binomial distribution with p = 0.5
(vii)	A hypergeometric distribution has parameters N = 8 , k = 4 and n = 3 Give its mean.	(viii)	Enlist any two properties of hypergeometric distribution
(ix)	Give the range of the hypergeometric random variable.		

SECTION-II

Note: Attempt any Three questions from this section $8 \times 3 = 24$

Q. 5	(A) Find Median and D_7 from the given data 15 , 7 , 3 , 0 , 9 , 6 , 4 , 5
	(B) Find Mode from the following distribution.

Height (in)	60 – 62	63 – 65	66 – 68	69 – 71
No. of Students	5	18	27	8

Q. 6	(A) Find Standard Deviation and Variance.

Classes	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60	60 - 70	70 - 80
f	02	03	04	20	15	07	05

	(B) From the data 1 , 4 , 7 , 8 , 10 calculate first four moments about mean.
Q. 7	(A) Compute the index numbers of price , taking 1962 as base (i) Mean (ii) G.M are used as average.

Years	Fire wood	Short cake	Kerosene oil	Matches
1962	3.25	2.50	0.20	0.06
1963	3.44	2.80	0.22	0.06
1964	3.50	2.00	0.25	0.06
1965	3.75	2.50	0.25	0.06

(Commodities)

	(B) From a well shuffled pack of 52 playing cards, two cards are drawn at random, what is the probability (i) One is a king and other is queen (ii) both are aces (iii) both are black (iv) both are spade cards ?
Q. 8	(A) Given that

X	2	4	6
P(X)	$\frac{2}{6}$	$\frac{2}{6}$	$\frac{2}{6}$

	Find (i) E(X) (ii) E(X²)
	(B) A continuous random variable X which can assume values between X = 2 and X = 8 inclusive has a density Function , $f(x) = A (x+3)$, where 'A' is constant , Find (i) A (ii) $P(3 \le x \le 5)$
Q. 9	(A) A fair die is thrown 6 times. Let X be a random variable showing number of sixes. Find (i) P (X = 2) (ii) P(X = 6)
	(B) A Committee of size 3 is selected from 4 men and 2 women. Obtain the probability distribution by the hypergeometric experiment for the number of men in the committee.