Roll No._____

STATISTICS **Intermediate Part-I , Class 11th (1stA 323- III)** **PAPER: I**

Time: 20 Minutes GUJ-11-23 **OBJECTIVE** **Marks: 17**

Code: 6185

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.

1- 1- The standard deviation of binomial distribution is

(A) np (B) npq (C) $\sqrt{npq}$ (D) nq

2- If $\sum(X-\bar{X})^2 = 180$ and n = 9, then m_2 is

(A) 25 (B) 9 (C) 20 (D) 18

3- The index given by $\frac{\sum p_n q_n}{\sum p_o q_n}$ is

(A) Laspeyre's index (B) Paasche's index (C) Value index (D) Fisher index

4- Let 'a' is a constant and 'X' is a random variable, then S.D.(aX) is

(A) a^2 S.D.(X) (B) S.D.(X) (C) aS.D.(X) (D) zero

5- If $B_2 = 3$, then the distribution is called

(A) mesokurtic (B) platykurtic (C) leptokurtic (D) ogive

6- Total angles of a pie chart are

(A) 360° (B) 180° (C) 190° (D) 90°

7- The probability of an impossible event is equal to

(A) zero (B) 1 (C) –1 (D) 2

8- The most frequent value in the data is

(A) Mean (B) Median (C) Mode (D) G.M.

9- Quantities which do not vary

(A) variables (B) constants (C) statistics (D) all of these

10- The Mean of Hypergeometric distribution is

(A) $\frac{NK}{n}$ (B) $\frac{N}{nK}$ (C) $\frac{n}{NK}$ (D) $\frac{nK}{N}$

11- First moment about mean is always equal to

(A) 1 (B) –1 (C) 2 (D) zero

12- The number of parameters of binomial distribution, are

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

13- If two dice are rolled, the possible outcomes are

(A) 6 (B) 12 (C) 216 (D) 36

14- A single value which represents a distribution is called

(A) S.D. (B) Variance (C) Average (D) C.V.

15- Geometric mean of 2 and 8 is

(A) 8 (B) 4 (C) 5 (D) 2

16- In fixed base method the base period should be

(A) far away (B) abnormal (C) normal (D) unreliable

17- If $f(x) = \frac{1}{10}$ and x=10, then E(X) is

(A) zero (B) 1 (C) $\frac{1}{2}$ (D) –1

STATISTICS | Intermediate Part-I , Class 11th (1stA 323) | PAPER: I

Time: 2:40 Hours | SUBJECTIVE | Marks: 68

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

SECTION – I

Gujj-11-23

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

i- Define statistics.
ii- Differentiate between variable and constant.
iii- Write down any four qualities of a good average.
iv- Define Geometric Mean.
v- Given $\sum(X-10)=2.8$ and $n=5$. Find Mean : $\overline{X}$
vi- Define weighted arithmetic mean.
vii- Given $L=60$, $h=10$, $f=20$, $n=80$ and $c=30$. Find median.
viii- Write down the empirical relationship between mean, median and mode.
ix- Define Price Relative.
x- Given P_{on}(Laspeyre's) $=120$, P_{on}(Paasche's) $=118$. Find P_{on}(Fisher) price index number.
xi- Given $W=20$, 25, 30 , 40 and $I=100$, 105 , 110 , 120. Find consumer price index number.
xii- What are the uses of index numbers?

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

i- Define tabulation.
ii- Define frequency distribution.
iii- What is meant by absolute dispersion?
iv- First, second and third quartiles of a distribution are 142, 153 and 167 respectively. Find coefficient of skewness.
v- Write down two properties of variance.
vi- What do you mean by kurtosis?
vii- Given that $n=8$, $\sum D=10$, $\sum D^2=524$. Find variance, where $D=X-15$
viii- Define mean deviation.
ix- Define probability of an event.
x- What are independent events?
xi- State addition law of probability for mutually exclusive events.
xii- State multiplication law of probability for two independent events.

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

i- What do you mean by probability density function?
ii- Narrate two laws of expectation.
iii- Given that $E(X+4)=10$ and $E(X+4)^2=116$. Find variance $(X+4)$
iv- A continuous random variable X has probability density function

$F(X)=c(4-X)$ for $1\le X\le 3$

$=0$ elsewhere

Find the value of c.

v- For a binomial distribution with $n=10$ and $p=\frac{1}{3}$. Find $P(X=5)$
vi- If X is a hypergeometric random variable with $N=8$, $n=6$ and $K=5$. Find S.D.(X)
vii- Describe hypergeometric experiment.
viii- Write down the properties of a binomial experiment.
ix- Describe hypergeometric probability distribution.

(Turn over)

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SECTION – II

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Note: Attempt any Three (3) questions.

5- (a) Find the G.M. of the following data 4

Classes	10 – 19	20 – 29	30 – 39	40 – 49	50 – 59
f	5	25	40	20	10

(b) The reciprocals of 8 values of X are given below: 4
0.0500 , 0.0454 , 0.0400 , 0.0333 , 0.0285 , 0.0232 , 0.0213 , 0.0200
Calculate A.M. and H.M.

6- (a) Find the coefficient of variation for the following data 4

Marks	1 – 3	3 – 5	5 – 7	7 – 9
f	10	15	20	25

(b) Find mean deviation from the following data 4

Group	2 – 4	4 – 6	6 – 8	8 – 10	10 – 12
f	3	45	6	4	3

7- (a) Compute Fisher Ideal index number using 2010 as base year, for the following data 4

Commodities	Prices		Quantities	
	2010	2015	2010	2015
A	10	12	120	100
B	8	10	150	130
C	12	13	80	70
D	15	20	60	50

(b) A card is selected from a deck of playing cards. Find the probability that 4
i) The card is black
ii) The card is queen card
iii) The card is spade card
iv) The card is a face card

8- (a) A random variable 'X' has the following distribution 4

X	0	1	2	3
P(X)	0.1	0.2	0.3	0.4

Find (i) E(X) (ii) Var(X)

(b) Given the following probability distribution 4

X_i	0	1	2	3	4
$P(X_i)$	1/126	20/126	60/126	40/126	5/126

Verify that E(2X+3) = 2E(X)+3

9- (a) Out of 800 families with 5 children each, how many would you expect to have 4
i) At least 3 boys
ii) At most 1 boy

(b) Four balls are drawn from a bag containing 4 white and 7 black balls. If "X" denotes the number of black balls are drawn, then obtain the probability distribution of X. Also find the Mean of the distribution. 4