Roll No _____ (To be filled in by the candidate) **(Academic Sessions 2019 – 2021 to 2022 – 2024)**

STATISTICS 223 – 1st Annual (INTER PART – I) Time Allowed : 20 Minutes

Q.PAPER – I (Objective Type) **PAPER CODE = 6181** Maximum Marks : 17

Note : Four possible answers A, B, C and D to each question are given. The choice which you think is correct, fill that circle in front of that question with Marker or Pen ink in the answer-book. Cutting or filling two or more circles will result in zero mark in that question. LHR-11-23

1-1	Yield from a plot is ---- variable :			
	(A) Discrete	(B) Continuous	(C) Attribute	(D) Categorical
2	Teaching and research journals are --- sources for collection of data :			
	(A) Primary	(B) Secondary	(C) Local	(D) Semi-official
3	Median divides the set of data into --- equal parts :			
	(A) 2	(B) 4	(C) 10	(D) 100
4	If $y = ax + b$ then $\bar{y} = ---$:			
	(A) $a\bar{x}$	(B) $\bar{x} + b$	(C) $a\bar{x} + b$	(D) $\bar{x}$
5	$\Sigma(y - \bar{y}) = ---$:			
	(A) 0	(B) 1	(C) Least	(D) > 0
6	If variance of a set of data is 25, then its standard deviation is :			
	(A) 25	(B) 12.5	(C) 7	(D) 5
7	First moment about mean is always :			
	(A) Positive	(B) 0	(C) Mean	(D) 1
8	If $y = ax + b$ then $var\ (y) =$ ---- :			
	(A) $a\,\text{var}(x)$	(B) $a^2\,\text{var}(x) + b$	(C) $a^2\,\text{var}(x)$	(D) $a\,\text{var}(x) + b$

1-9	Laspeyre's Index No. is also called :			
	(A) Base year weighted	(B) Current year weighted	(C) Ideal	(D) Simple
10	In chain base method, base period is :			
	(A) Fixed	(B) Constant	(C) First	(D) Not fixed
11	When a coin is tossed three times, n (s) = --- :			
	(A) 2	(B) 4	(C) 8	(D) 6
12	Probability of drawing a card of ace is :			
	(A) $\frac{1}{2}$	(B) $\frac{1}{13}$	(C) $\frac{1}{4}$	(D) $\frac{1}{5}$
13	$E(X^2) = 29$ and $E(X) = 4$, then $Var(X) = ---$:			
	(A) 25	(B) 13	(C) $\sqrt{13}$	(D) 5
14	A random variable is also named as :			
	(A) Chance variable	(B) Discrete variable	(C) Qualitative variable	(D) Attribute
15	No. of parameters in hyper-geometric distribution :			
	(A) 1	(B) 2	(C) 3	(D) 4
16	Mean of binomial distribution :			
	(A) nq	(B) pq	(C) npq	(D) np
17	Limit of binomial distribution is :			
	(A) 0 to n	(B) 0 to 1	(C) $-\infty$ to $+\infty$	(D) 0 to ∞

Roll No _____ (To be filled in by the candidate) **(Academic Sessions 2019 – 2021 to 2022 – 2024)**

STATISTICS 223-1st Annual-(INTER PART – I) Time Allowed : 2.40 hours

PAPER – I (Essay Type) LHR-11-23 Maximum Marks : 68

SECTION – I

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

(i) Describe the importance of statistics.

(ii) Define "Statistics" in plural sense.

(iii) Define arithmetic mean.

(iv) Define harmonic mean.

(v) In a distribution, Mean is " 50 " and Median is " 10 ". Find Mode of the distribution.

(vi) If for 10 observations, $\Sigma(X-23)=-17$, find the value of Mean.

(vii) Write down any two merits of " Median ".

(viii) Define composite index number.

(ix) Define un-weighted index number.

(x) What is fixed base method?

(xi) Define Fisher Index Number.

(xii) If $\Sigma p_n . q_o = 460$, $\Sigma p_o . q_o = 115$, compute Laspeyre's Index Number.

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

(i) Write down the main parts of a table.

(ii) Differentiate between ungroup data and group data.

(iii) Define range. How will you calculate it for grouped data?

(iv) Write down the main properties of S.D.

(v) What is Kurtosis?

(vi) If $Q_1 = 88.03$ and $Q_3 = 94.90$, find quartile deviation.

(vii) If X = 30, 31, 32, 33, 34, 35, 36, 37 , find range and its co-efficient.

(viii) How we calculate co-efficient of quartile deviation?

(ix) Define combination.

(x) Define sample space.

(xi) What are dependent events?

(xii) What is factorial?

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

(i) Define binomial random experiment.

(ii) If n = 10 and p = 0.4, then find the mean and variance of binomial distribution.

(iii) Define hypergeometric experiment.

(iv) If N = 7 , n = 5 and k = 2, find P (X = 0)

(v) Define hypergeometric probability distribution.

(vi) What do you understand by random number?

(vii) Differentiate between discrete random variable and continuous random variable.

(Turn Over)

4. (viii) Define mathematical expectation. LHR-11-23

(ix) Given that E (X) = 0.63 and Var (X) = 0.2331, then find E (X^2)

SECTION – II

Note : Attempt any THREE questions.

5. (a) Consider the following data : 4

Classes	40 – 50	50 – 60	60 – 70	70 – 80	80 – 90
Frequency	4	8	16	8	4

Calculate Harmonic Mean.

(b) Find the value of mode from the data given below : 4

Marks	10 – 14	15 – 19	20 – 24	25 – 29	30 – 34
f	2	4	8	6	3

6. (a) Find mean deviation from the median from the following data : 4

Age	5 – 10	10 – 15	15 – 20	20 – 25
f	10	20	30	15

(b) Find the co-efficient of Q.D. from the following data : 4

Groups	5 – 9	10 – 14	15 – 19	20 – 24	25 – 29
f	3	4	12	6	5

7. (a) Given the prices of three commodities, construct the chain indices using median as an average : 4

Years	Commodities		
	A	B	C
2014	105	84	119
2015	110	96	126
2016	110	103	132
2017	120	116	144

(b) From a pack of 52 playing cards, two cards are chosen at random. What is the probability that : 4

(i) Both are diamonds. (ii) One is ace and other is king.

8. (a) Let X be a random variable with the probability distribution : 4

X	1	2	3	4	5
P(X)	0.125	0.450	0.250	0.050	0.125

Show that E (5X + 8) = 5E(X) + 8

(b) A continuous r.v ' X ' has p.d.f. as : 4

$$f(x) = \frac{x+1}{8}, \quad 2 \le x \le 4$$

Find P ($2.4 < x < 3.5$)

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) 4

(b) Five balls are drawn from a box containing 4 white and 7 black balls. If X denotes the number of black balls drawn, find (i) P (X = 2) (ii) P (X = 5) 4