

**LHR-11-18**

Roll No \_\_\_\_\_ (To be filled in by the candidate) (Academic Sessions 2015 – 2017 to 2017 – 2019 )

**STATISTICS**

218 -(INTER PART – I)

Time Allowed : 20 Minutes

Q.PAPER – I ( Objective Type )

**PAPER CODE = 6183**

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.

1-1	In qualitative data, the most suitable average is : (A) Arithmetic mean (B) Geometric mean (C) Harmonic mean (D) Mode
2	If $\beta_2 < 3$ the distribution is : (A) Mesokurtic (B) Leptokurtic (C) Platykurtic (D) Symmetrical
3	If X and Y are two random variables then $E(X - Y) =$ : (A) $E(X) + E(Y)$ (B) $E(X) - E(Y)$ (C) $E(X)E(Y)$ (D) $XE(Y)$
4	In hyper-geometric distributions, trials are : (A) Independent (B) Dependent (C) Mutually exclusive (D) Not fixed
5	Brand of a soap is ---- variable : (A) Quantitative (B) Qualitative (C) Imaginary (D) Continuous
6	Probability of an event cannot be : (A) 0 (B) Negative (C) 1 (D) Positive
7	Headings for different columns in a table are called : (A) Stub (B) Title (C) Column captions (D) Prefatory note
8	Laspayre's index number is also named as : (A) Current year weighted (B) Base year weighted (C) Ideal index number (D) Simple index number
9	If $p = q = \frac{1}{2}$ , the binomial distribution is a : (A) Skewed (B) Asymmetrical (C) Symmetrical (D) Positively skewed
10	S.D ( $y + a$ ) = ---- : (A) $SD(y) + a$ (B) $ a  SD(y)$ (C) $SD(y)$ (D) $a^2 SD(y)$
11	A graph of cumulative frequency curve is called : (A) Histogram (B) Pie chart (C) Bar chart (D) Ogive
12	If $\sqrt{\beta_1} = 0$ , the distribution is : (A) Positively skewed (B) Symmetrical (C) Negatively skewed (D) Leptokurtic
13	In a symmetrical distribution : (A) Mean = median = mode (B) Mean > median > mode (C) Mean < median < mode (D) Mean > median < mode
14	In index number base year should be : (A) First year (B) Second year (C) Last year (D) Normal year
15	$\Sigma(y - \bar{y}) =$ : (A) 0 (B) 1 (C) Least (D) Minimum
16	If A and B are mutually exclusive events then $P(A \cup B)$ equal to : (A) $P(A) + P(B)$ (B) $P(A) + P(B) + P(A \cap B)$ (C) $P(A) + P(B) - P(A \cap B)$ (D) $P(A) - P(B) - P(A \cap B)$
17	A random variable is also named as : (A) Chance variable (B) Qualitative variable (C) Attribute (D) Discrete variable

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4. (v) Given  $X = 1, 2, 3, 4, 5$  and  $P(X) = \frac{1}{10}, \frac{3}{10}, P, \frac{2}{10}, \frac{1}{10}$ . Find the value of P.
- (vi) Define a Bernoulli trial.
- (vii) A random variable  $X$  has a binomial distribution with  $n = 5$  and  $P = 0.2$ , find  $P(X = 2)$ .
- (viii) Define hypergeometric experiment.
- (ix) Given  $N = 10$ ,  $n = 4$  and  $K = 5$ , find  $E(X)$ .

**SECTION - II**

Note : Attempt any THREE questions.

5. (a) (i) A man gets a rise of 10% in salary at the end of his first year of service and further rises of 20% and 25% at end of the second and third year respectively. The rise in each case being calculated on his salary at the beginning of the year. What is annual percentage average increase? 2
- (ii) Find average of 10 km / h, 20 km / h and 25 km / h. 2
- (b) (i) Compute mode of the data given below : 2

Wages	4 - 6	6 - 8	8 - 10	10 - 12	12 - 14	14 - 16
Employees	13	110	180	105	18	8

- (ii) Also find median of data of part (i) of Q.No. 5 (b). 2
6. (a) Following are the heights (cms) of 5 students, measured at the time of registration. Compute mean deviation about mean and mean coefficient of dispersion. 4  
Heights (cms) : 88.03, 94.50, 94.90, 95.50, 84.60
- (b) The first three moments of a distribution about the value 2 of a variable  $X$ , are 1, 16 and  $-40$ . Show that the mean is 3, variance is 15 and third moment about mean  $m_3$  is  $-86$ . 4
7. (a) Find chain indices for the following data : 4

Year	2010	2011	2012	2013	2014	2015	2016
Price	114	118	119	125	130	131	135

- (b) Three coins are tossed. Find the probability that : 4  
(i) Exactly 3 tails appear. (ii) At most 2 tails appear.
8. (a) The probability distribution of a random variable  $X$  is given below : 4

$x$	1	2	3	4	5
$P(x)$	0.1	0.3	0.3	0.2	0.1

Find mean and variance of  $X$ . 4

- (b) A continuous random variable  $X$  has probability density function : 4

$$f(x) = \frac{2}{27}(x+1) \quad 2 \leq x \leq 5$$

Find : (i)  $P(x < 4)$  (ii)  $P(3 \leq X \leq 4)$

9. (a) Five dice are tossed 960 times. Find the expected frequencies when throwing of 4, 5, or 6 is regarded as success. 4
- (b) Given that  $X$  is a hypergeometric random variable with  $N = 8$ ,  $n = 3$  and  $K = 5$ , compute  $P(X \leq 2)$  4