



Roll No.

Answer Sheet No. _____

Sig. of Candidate. _____

Sig. of Invigilator. _____

STATISTICS HSSC-I
SECTION – A (Marks 17)

Time allowed: 25 Minutes

NOTE:- Section–A is compulsory and comprises pages 1-2. All parts of this section are to be answered on the question paper itself. It should be completed in the first 25 minutes and handed over to the Centre Superintendent. Deleting/overwriting is not allowed. Do not use lead pencil.

Q. 1 Circle the correct option i.e. A / B / C / D. Each part carries one mark.

- (i) In the plural sense, Statistics means _____
- A. Methods
B. Numerical data
C. Sample data
D. Population data
- (ii) Statistics are _____
- A. Aggregate of facts and figures
B. Always true
C. Always continuous
D. Always qualitative
- (iii) If there is no gaps between consecutive classes, the limits are called _____
- A. Class limits
B. Class boundaries
C. Class intervals
D. Class marks
- (iv) Histogram is a graph of _____
- A. Frequency distribution
B. Time series
C. Qualitative data
D. Ogive
- (v) The graph of Time series is called _____
- A. Histogram
B. Histogram
C. Ogive
D. Sector diagram
- (vi) If $\bar{X} = 100$ and $Y = 2X - 200$, then the mean of Y values will be _____
- A. 0
B. 2
C. 100
D. 200
- (vii) If all the items in a variable are non zero and non negative then _____
- A. $A.M > G.M > H.M$
B. $G.M > A.M > H.M$
C. $H.M > G.M > A.M$
D. $A.M < G.M < H.M$
- (viii) The mean is affected by change of _____
- A. Origin
B. Scale
C. Both A and B
D. Units
- (ix) If the distribution has two modes then it is called _____
- A. Uni-modal
B. Bi-modal
C. Tri-modal
D. None of these

DO NOT WRITE ANYTHING HERE

- (x) The degree to which numerical data tend to spread out about an average value is called _____
A. Constant
B. Flatness
C. Variation
D. Skewness
- (xi) The Variance of 7,7,7,7,7,7,7 is _____
A. 7
B. $(7)^2$
C. 0
D. $\sqrt{7}$
- (xii) For a symmetrical distribution _____
A. $\beta_1 > 0$
B. $\beta_1 < 0$
C. $\beta_1 = 0$
D. $\beta_1 = 3$
- (xiii) Index number for base period is always taken as _____
A. 100
B. One
C. 200
D. Zero
- (xiv) Another name of consumers's price index (C.P.I) number is _____
A. Wholesale price index number
B. Cost of living index number
C. Sensitive
D. Composite
- (xv) When two variables move in the same direction, then the Correlation is _____
A. Positive
B. Negative
C. Fractional
D. None of these
- (xvi) There are _____ main components of a time series.
A. Three
B. Four
C. Five
D. None of these
- (xvii) The sequence which follows irregular or random pattern of Variation is called _____
A. Signals
B. Noise
C. Model
D. Trend

For Examiner's use only:

Total Marks:

17

Marks Obtained:

— 1HA 1213 —

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STATISTICS HSSC-I

Time allowed: 2:35 Hours

Total Marks Sections B and C: 68

NOTE:- Sections 'B and C' comprise pages 1-2. Answer any fourteen parts from Section 'B' and any two questions from Section 'C' on the separately provided answer book. Use supplementary answer sheet i.e. Sheet-B if required. Write your answers neatly and legibly.

SECTION - B (Marks 42)

Q. 2 Attempt any FOURTEEN parts. All parts carry equal marks. (14 x 3 = 42)

- (i) Differentiate between Descriptive and Inferential Statistics.
- (ii) Distinguish between Histogram and Histogram.
- (iii) Differentiate between Ungrouped and Grouped data.
- (iv) Differentiate between Class limits and Class boundaries.
- (v) List the main parts of a table.
- (vi) A variable Y is determined from a variable X by the equation $Y = 10 - 4X$.
Find Y when $X = -3, -2, -1, 0, 1, 2, 3, 4, 5$ and show that $\bar{Y} = 10 - 4\bar{X}$
- (vii) The mean of 15 values is 10. If one more value is included, then mean becomes 12.
Find the value included.
- (viii) The geometric mean of a series of 4 items is 10.2. Find the product of all the items.
- (ix) If for 10 observations $\sum(x - 23) = -17$, then find the value of mean.
- (x) If mean and G.M of two numbers are 20 and 16, respectively, then find the value of H.M.
- (xi) The mean of 200 items is 48 and their standard deviation is 3. Find $\sum X$ and $\sum X^2$.
- (xii) Given mean=200, C.V=7. Find the value of variance.
- (xiii) Differentiate between Fixed Based method and Chain based method Index Numbers.
- (xiv) If Paasche's Index Number=74.76 and Fisher's Index Number=75.76, then find the Laspeyre's Price Index Number.
- (xv) Explain the terms Regressand and Regressor.
- (xvi) Interpret the meaning when:
 - a. $r = +1$
 - b. $r = -1$
 - c. $r = 0$
 - d. $r = -0.98$
 - e. $r = 0.2$
 - f. $r = 2$
- (xvii) Given $r = 0.8$, $S_{xy} = 20$, $S_x = 4$. Find S_y .
- (xviii) Given $Y = 10, 8, 6$ and $X = 0, 1, 2$. Find the Sample Correlation Co-efficient.
- (xix) Given $\sum X = 0$, $\sum Y = 245$, $\sum X^2 = 28$, $\sum XY = 66$ and $n = 7$
Fit a Linear Trend.

SECTION – C (Marks 26)

Note:- Attempt any TWO questions. All questions carry equal marks.

(2 x 13= 26)

- Q. 3 a. Following data has been obtained from a frequency distribution of a Continuous Variable X after making the substitution $U = \frac{x - 136.5}{2}$

U	-4	-3	-2	-1	0	1	2	3
f	2	5	8	18	22	13	8	4

Find mean, median and mode of the Variable x.

- b. If the mode and mean of a moderately asymmetrical series are 16 and 20.2 respectively, compute the value of median.
- Q. 4 a. The weight measured in grams of 20 eggs are given below:
65, 68, 60, 76, 65, 74, 58, 56, 61, 57, 63, 64, 72, 66, 65, 67, 65, 63, 67, 67
- Find the percentage of observations lying within the limits
(i) $\bar{X} \pm S$ (ii) $\bar{X} \pm 3S$
- b. From the following data, find index numbers for 2002 with 2001 as base year by:
(i) Laspeyre's formula
(ii) Paasche's formula
(iii) Show numerically that Fisher's Ideal formula is the geometric mean (G.M) of the above two:

Item	Prices		Quantities	
	2001	2002	2001	2002
A	64	75	270	290
B	40	45	124	144
C	18	21	130	137
D	58	68	185	200

- Q. 5 Suppose that a shoe manufacturer takes a random sample of his production in order to examine the relationship between wearing performance and cost:

Cost of Production (X)	Months of Wear (Y)
15	10
20	12
20	09
10	08
10	06

- (i) Compute the regression lines of Y on X and X on Y
(ii) From the above, show that Correlation Coefficient is the Geometric Mean between two regression coefficients.