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. 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) Statistics are:
- A. Always qualitative
- B. Always continuous
- C. Aggregate of numerical facts
- D. Fictitious figure

(ii) Number of chairs in the college is an example of:
- A. Constant
- B. Discrete variable
- C. Continuous variable
- D. Qualitative variable

(iii) Column captions are also called:
- A. Title
- B. Body
- C. Box head
- D. Stub

(iv) Total angle of pie chart is:
- A. 270°
- B. 300°
- C. 320°
- D. 360°

(v) Direct personal investigation is a source of:
- A. Primary data
- B. Secondary data
- C. Official data
- D. Private data

(vi) If " k " is any constant then $\sum_{i=1}^{5} k = ?$
- A. $5k$
- B. $5 + k$
- C. nk
- D. k

(vii) Sum of squares of the deviations is least, when deviations are taken from:
- A. Mean
- B. Harmonic mean
- C. Mode
- D. Median

(viii) If $\bar{x} = 10$ and $y = 2x + 5$ then $\bar{y}$ is:
- A. 20
- B. 25
- C. 30
- D. 45

(ix) Which of the following is a relative measure of Dispersion?
- A. Coefficient of variation
- B. Standard deviation
- C. Variance
- D. Mean deviation

(x) Standard deviation of the values 2, 2, 2, 2, 2 is:
- A. 2
- B. 10
- C. 0
- D. 4

(xi) 2nd moment about mean is equal to:
- A. Range
- B. Mean deviation
- C. Variance
- D. Standard deviation

(xii) Which of the following index number is called base year weighted?
- A. Paasche's
- B. Laspeyer's
- C. Marshall's
- D. Fisher's

(xiii) In fixed base method, the base period should be:
- A. Far away
- B. Abnormal
- C. Unreliable
- D. Normal

(xiv) In the regression line $y = a + bx$:
- A. $\sum x = \sum \hat{x}$
- B. $\sum y = \sum \hat{y}$
- C. $\sum x = \sum y$
- D. $x = y$

(xv) The independent variable is also called:
- A. Regressand
- B. Predictand
- C. Regressor
- D. Explained

(xvi) Wheat crop badly damaged by rain is an example of:
- A. Random variations
- B. Cyclical variations
- C. Secular trend
- D. Seasonal variations

(xvii) A time series has:
- A. 3 components
- B. 4 components
- C. 2 components
- D. 5 components

For Examiner's use only:

Total Marks: 〔 **17** 〕

Marks Obtained: 〔 〕

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. Graph paper will be provided on demand.

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)   What is Histogram?

(iii)   Given $y = a + bx$, $\sum_{i=1}^{5} x_i = 100$, $a = 15, b = 2$. Find $\sum_{i=1}^{5} y_i$

(iv)   What is meant by frequency distribution?

(v)   The following data shows number of students absent during the month of November from the class of statistics. $3, 4, 5, 6, 7, 1, 0, 2, 3, 4, 5, 7, 8, 4, 2, 1, 5, 6, 7, 8, 9, 10, 6, 4, 3$. Form a frequency distribution.

(vi)   The Geometric mean of 4 items is 10. Find the product of all the values.

(vii)   Differentiate between absolute and relative dispersion.

(viii) Define range.

(ix)   Deviations from 25.5 of different values of 'X' are given $-15.4, -1.9, 6.2, 13.7, 24.6, 25.5, 5.3, 3.8, -7.9$ and 4.9. Compute harmonic mean.

(x)   The first four moments about value 2 of a distribution are 1, 2.5, 5.5 and 16. Calculate 3rd moment about mean.

(xi)   What is meant by Skewness?

(xii)   Following table gives the index numbers of three commodities. Calculate weighted average of these index numbers when food, fuel & light and clothing are given weights of 5, 1, 3 respectively.

Food	111
Fuel & light	105
Clothing	106

(xiii) Differentiate between simple and composite index numbers.

(xiv)   If Laspeyer's index = 105.4 and Paashe's index = 103.2, then find Fisher's index.

(xv)   What is meant by correlation?

(xvi)   If $S_x = 10, S_y = 8$, $r_{xy} = 0.60$ then find b_{xy} and b_{yx}.

(xvii) If $\overline{X} = 50, \overline{Y} = 110$ and $b = 1.95$ then find the value of 'a'.

(xviii) Define time series.

(xix)   Distinguish between additive and multiplicative models of a time series.

Note: **Attempt any TWO questions. All questions carry equal marks.** (2 x 13= 26)

Q. 3 **a.** Calculate lower and upper quartiles from the following table: (07)

Group	10-14	14-18	18-22	22-26	26-30	30-34	34-38
f	7	11	22	27	15	12	6

b. Calculate standard deviation from the following distribution. Also compute its variance. (06)

X	1	2	3	4	5
f	5	10	15	12	8

Q. 4 **a.** Given the following information: (06)

Commodity	2002		2003	
	Price	Quantity	Price	Quantity
A	45	90	93	100
B	37	10	64	11
C	27	3	51	5

Construct the following index numbers of prices for the year 2003 by taking 2002 as base year:

(i) Laspeyer's index

(ii) Paasche's index

b. Find the coefficient of correlation between X and Y: (07)

X	1	2	3	4	5	6	7	8	9
Y	1	3	4	6	8	9	2	5	7

Q. 5 Fit a straight line to the following data of bank deposits for the years 1946 – 56. (13)

Year	Deposit in Crores of rupees
1946	29.5
1947	32.5
1948	34.5
1949	37.1
1950	37.0
1951	38.2
1952	45.5
1953	52.2
1954	58.3
1955	67.3
1956	74.8

Find trend values from the equation of fitted straight line and plot them on the graph paper of original values.