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) A specific characteristic of a sample is called:

A. Variable B. Constant

C. Parameter D. Statistic

(ii) A variable that assumes only some selected values in a range is called:

A. Continuous variable B. Quantitative variable

C. Qualitative variable D. Discrete data

(iii) Colors of flowers is an example of:

A. Quantitative variable B. Symmetric variable

C. Skewed variable D. Qualitative variable

(iv) The grouped data are called:

A. Primary data B. Raw data

C. Secondary data D. Difficult to tell

(v) In classification, the data are arranged according to:

A. Percentages B. Differences

C. Similarities D. Ratios

(vi) A sector diagram is also called:

A. Bar diagram B. Histogram

C. Pie diagram D. Historigram

(vii) The measure of central tendency listed below is:

A. The raw score B. The Mean

C. The range D. Standard deviation

(viii) Mode of the series 0, 0,0,2,2, 3,3,8,10 is:

A. 2 B. 0

C. 3 D. No Mode

(ix) The population mean μ is called:

A. Discrete variable B. Parameter

C. Continuous variable D. Sampling unit

(x) In Symmetrical distribution $Q_3 - Q_1 = 20, Median = 15$, Q_3 is equal to:

A. 5 B. 25

C. 20 D. 15

(xi) The standard deviation of – 5, – 5, – 5, – 5 is:

A. 0 B. +5

C. – 5 D. – 25

(xii) The measures of dispersion can never be:

A. Negative B. Zero

C. Positive D. Equal to 2

(xiii) When index number is calculated for Several variables it is called:

A. Composite index B. Wholesale price index

C. Volume index D. Simple index

(xiv) Paasche's price index number is also called:

A. Base year weighted B. Current year weighted

C. Simple aggregative index D. Consumer price index

(xv) Index number having upward bias is:

A. Laspeyre's index B. Paasche's index

C. Fisher's index D. Marshall Edgeworth index

(xvi) If regression line of $\hat{y} = 5$ then value of regression coefficient of y and x is:

A. 0.5 B. 0

C. 1 D. 5

(xvii) A business cycle has:

A. One stage B. Four stages

C. Three stages D. Two stages

For Examiner's use only:

Total Marks: 17

Marks Obtained:

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 variable and constant.

(ii) Name the sources of primary data.

(iii) Distinguish between Histogram and Historigram.

(iv) Write down the qualities of a good average.

(v) $u=\frac{x-170}{5}$, $\sum fu=100$ and $\sum f=200$. Find arithmetic mean.

(vi) Define Geometric mean.

(vii) Find unbiased sample standard deviation of the scores 30, 35, 40.

(viii) $\sum x=180$, $\sum x^2=6660$ and $n=5$. Find coefficient of variation.

(ix) The first four moments about the arithmetic mean of a distribution are 0,4, 6 and 48. Find β_2.

(x) Define the term Skewness.

(xi) $\sum P_o q_n=1000$ and $\sum P_n q_n=1360$. Find current year weighted index.

(xii) What is cost of living index number?

(xiii) $\bar{x}=1, \bar{y}=8$ and $b=2$. Find the value of intercept a.

(xiv) If $b_{yx}=-1.6$ and $b_{xy}=-0.4$. Find the value of r_{xy}.

(xv) What is meant by residual?

(xvi) $\sum x=0$, $\sum y=27.1$, $\sum xy=29.5$, $\sum x^2=330$. Determine the value of b.

(xvii) If $y=16,18,20,22,24$, $x=-2,-1,0,1,2$ and $\hat{y}=20+2x$. Compute the sum of squares of residuals.

(xviii) What is meant by seasonal variations?

(xix) Define irregular variations.

SECTION – C (Marks 26)

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

Q. 3 **a.** The following frequency distribution shows the hourly income of 100 households in a locality: **(06)**

Income (Rs)	35 – 39	40 – 44	45 – 49	50 – 54	55 – 59	60 – 64	65 – 69
Frequency	13	15	28	17	12	10	5

Calculate the arithmetic mean and show that sum of deviations of values from their mean is zero.

b. Compute the Bowley's coefficient of skewness and Interpret its value for the data given below: **(07)**

Group	40 - 50	50 – 60	60 – 70	70 – 80	80 – 90
Frequency	12	15	16	15	12

Q. 4 Compute the index numbers using simple aggregative method with 1952 as base year: **(13)**

Commodity	1952	1953	1954	1955
Wheat	25.2	21.3	25.4	30.2
Rice	15.9	16.3	18.9	19.3
Barley	15.9	14.0	16.3	18.5
Jawar	11.3	14.3	11.5	13.6
Grams	13.0	13.5	13.6	13.9

Q. 5 **a.** The following sample observations were randomly selected: **(07)**

X	4	5	3	6	12
Y	4	6	5	7	8

Determine the value of $\hat{y}$ when x is 7.

b. Compute 3 year and 5 year moving averages from the following data: **(06)**

Year	1982	1983	1984	1985	1986	1987	1988	1989
Factory sales in Millions	6.2	7.8	8.3	9.3	8.6	7.8	8.1	7.9