

Federal Board HSSC-I (2016)

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.

Q1. Circle the correct option i.e. A/B/C/D. Each part carries one mark.

(i) A specific characteristic of a population is called:
 A Statistic B Parameter
 C Variable D Sample

(ii) Listing of the data in order of Numerical Magnitude is called:
 A Raw data
 B Arrayed data
 C Discrete data
 D Continuous data

(iii) The word ogive is also used for:
 A Frequency polygon
 B Cumulative frequency polygon
 C Frequency curve
 D Histogram

(iv) A variable that assumes any value within a range is called:
 A Discrete variable
 B Continuous variable
 C Independent variable
 D Dependent variable

(v) The average of lower and upper class limits is called:
 A Class boundary
 B Class frequency
 C Class mark
 D Class limit

(vi) A pie diagram is represented by a:
 A Rectangle B Triangle
 C Circle D Square

(vii) Step deviation method or coding method is used for computation of the:
 A Geometric mean
 B Harmonic mean
 C Arithmetic mean
 D Weighted mean

(viii) A curve that tails off to the right end is called:
 A Symmetrical
 B Negatively skewed
 C Positively skewed
 D Both A and B

(ix) The sample mean \bar{x} is a:
 A Parameter B Constant
 C Variable D Statistic

(x) The variance is zero only if all observations are:
 A Different B Square
 C Square root D Same

(xi) The range of the values -5,-8,-10,0,6,10 is:
 A 0 B 10
 C -10 D 20

(xii) Bowley's coefficient of Skewness lies between:
 A 0 and 1 B -2 and +2
 C -1 and 0 D -1 and +1

(xiii) Index for base period is always taken as:
 A 100 B One
 C 200 D Zero

(xiv) Price relative computed by chain Base method is called:
 A Link relative B Chain indices
 C Price relatives D None of these

(xv) Base year quantities as weights are used in:
 A Laspeyre's method
 B Paasche's method
 C Fisher's ideal method
 D None of these

(xvi) In simple regression equation, the number of variables involved is:
 A 2 B 1
 C 0 D 3

(xvii) Depression in business is:
 A Cyclical B Secular trend
 C Seasonal D Irregular

SECTION - B (Marks 42)

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

(i) Differentiate between parameter and statistic.

(ii) Name the branches of statistics

(iii) Differentiate between grouped data and ungrouped data

(iv) The mean of 5 observations is 60. Another item is included in the observations and now the mean becomes 62. Find the included item

(v) $\sum(x-10) = 28$ and $n = 5$. Find the sample mean

(vi) What is meant by measures of central tendency?

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

(viii) If $Var(x) = 25$ then find $Var(2x + 4)$

(ix) The first two moments of a distribution about the value 5 of a variable are 2 and 32. Find variance

(x) Define the standard deviation

(xi) $\sum P_o q_o = 1500$ and $\sum P_n q_o = 2040$. Find base year weighted index

(xii) What are the important uses of index numbers?

(xiii) If $x = 50$, $y = 110$ and $a = 10$. Find the value of b

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

(xv) Write down the properties of the correlation coefficient

(xvi) $\sum x = 0$, $\sum y = 41172$ and $n = 10$. Find the value of x intercept a

(xvii) $\sum x = 0$, $\sum y = 245$, $\sum x^2 = 28$, $\sum xy = 66$ and $n = 7$. Fit a linear trend

(xviii) What are the different components of a time series?

(xix) Differentiate between signal and noise

SECTION - C (Marks 26)

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

Q. 3 a. The following table shows the distribution of the maximum loads in short tons supported by certain cables produced by a company (08)

Maximum Load	No. of Cables	Maximum Load	No. of Cables
9.3-9.7	2	11.3-11.7	14
9.8-10.2	5	11.8-12.2	6
10.3-10.7	12	12.3-12.7	3
10.8-11.2	17	12.8-13.2	1

b. Compute the Mean deviation from median and its coefficient from the following data (05)

Daily wages (Rs)	No. of persons
200 - 250	10
250 - 300	20
300 - 350	40
350 - 400	20
400 - 450	10

Q. 4 Find chain indices from the following price relative of the three commodities using Geometric mean as Average (13)

Year	Commodities		
	A	B	C
1999	255	216	330
2000	186	162	384
2001	312	261	333
2002	279	225	462
2003	180	129	495

Q. 5 a. Show that the Sum of errors and Sum of squares of errors are zero for the following data. (07)

X	1	2	3	4	5
Y	0	1	2	3	4

b. Compute 4 year centered moving average for the following time series (06)

Year	1993	1994	1995	1996	1997	1998	1999	2000
Production in Million (kg)	331	344	349	332	364	395	400	410