UNIVERSITY OF THE PUNJAB

First Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig. .....

Roll No. in Words. .....

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Signature of Supdt.:

PAPER: Statistics-I **MAX. TIME: 15 Min.**

Course Code: STAT-101 Part–I (Compulsory) **MAX. MARKS: 10**

Attempt this Paper on this Question Sheet only.
Please encircle the correct option. Division of marks is given in front of each question.
This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

i. In general, which of the following statements is FALSE?

a) The sample mean is more sensitive to extreme values than the median.
b) The sample range is more sensitive to extreme values than the standard deviation.
c) The sample standard deviation is a measure of spread around the sample mean.
d) The sample standard deviation is a measure of central tendency around the median.

ii. Which of the following statements is NOT true?

a) In a symmetric distribution, the mean and the median are equal.
b) The first quartile is equal to the twenty-fifth percentile.
c) In a symmetric distribution, the median is halfway between the first and the third quartiles.
d) The median is always greater than the mean.

iii. The least squares regression line is the line:

a) which is determined by use of a function of the distance between the observed Y and the predicted Y.
b) which has the smallest sum of the squared residuals of any line through the data values.
c) for which the sum of the residuals about the line is zero.
d) which has all of the above properties

iv. Which of the following is a limitation of Statistics?

a) Statistical results can be generalized for the population
b) Statistical laws are exact.
c) Statistics does not study individuals.
d) All of these

v. A small part of the population is called:

a) Finite Population
b) Infinite Population
c) Sample
d) Parameters

P.T.O.

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PAPER: Statistics-I **MAX. TIME: 2 Hrs. 45 Min.**

Course Code: STAT-101 Part – II **MAX. MARKS: 50**

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q2. Explain the following: (4x5)

i) Measures of Central Tendency
ii) Measures of Dispersion
iii) Index Numbers
iv) Properties of Correlation Coefficient
v) Components of Time Series

Q3. (a) A distribution consists of 3 components with frequencies 45, 40 and 65, having their means 2, 2.5 and 3 respectively. The standard deviations of the three components are 1.5, 2.0 and 2.5 respectively. Find the combined standard deviation. *(03)*

(b) The following data gives the runs made by two players in their 10 innings: *(06)*

Player A	40	45	80	10	75	20	60	35	42	100
Player B	45	42	38	40	35	41	50	42	39	48

i. Which player is better on average run getter?
ii. Which player is more consistent than the other player?

Q4. The following table represents the death rate (y) in road accidents (per 100) and the maximum speed limit (x: miles per hour) in different countries. *(06)*

Y	3.0	3.3	3.4	3.5	4.1	4.3	4.7	4.9	5.1	6.1
X	55	55	55	70	55	60	55	60	60	75

i. Estimate a linear regression model Y on X from the data.
ii. What would be the expected death rate when speed limit is 65 miles per hour?

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PAPER: Elementary Statistics-I **MAX. TIME: 15 Min.**

Course Code: STAT-101-A Part–I (Compulsory) **MAX. MARKS: 10**

Attempt this Paper on this Question Sheet only.
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This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

i. The common measure of variability is _____
   a) Standard Deviation
   b) Mean
   c) Geometric Mean
   d) None of the above

ii. The sample variance for a sample of (n) measurements is equal to the sum of the squared distances from the mean _____
   a) Divided by (n)
   b) Divided by (n-1)
   c) Divided by (n+1)
   d) Both a and b

iii. For quantitative data, _____ is often preferred over the mode as a measure of center because the value that occurs most frequently may not necessarily be located near the center of the data set.
   a) Mean
   b) Median
   c) Both a and b
   d) None of the above

iv. Skewness tells us about the _____ _____ of a frequency distribution.
   a) Centre
   b) Shape
   c) Both a and b
   d) None of the above

v. Variance is interpreted in the _____ of the data
   a) Same units
   b) Squared units
   c) Different units
   d) None of the above

vi. Mean deviation is referred as total amount by which values deviate from _____
   a) Standard deviation
   b) Variance
   c) Mean
   d) None of the above

vii. Median cannot be calculated in case of _____
   a) Ordinal data
   b) Nominal data
   c) Ratio data
   d) Interval data

viii. The class interval is _____ to the difference between class boundaries
   a) Sum
   b) Equal
   c) Unequal
   d) None of the above

ix. An appropriate scale for graphical presentation must be consistent with _____
   a) Size of data
   b) Diagram
   c) Aggregate frequency
   d) None of the above

x. The number of bedroom in a house is a _____ variable
   a) Discrete
   b) Continuous
   c) Both a and b
   d) None of the above

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Course Code: STAT-101-A Part – II

MAX. TIME: 2 Hrs. 45 Min.
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ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q 2. Explain the following briefly — **4 * 5 = 20**

i. Data and Experiment
ii. Population and Sample
iii. Interval and Ratio scale of measurement
iv. Absolute and Relative Dispersion
v. Index Numbers

Q 3. Following table shows frequency distribution for number of minutes per week spent watching TV by students. With reference to this table determine — **10**

i. The percentage of students with viewing times is at least 600 minutes but less than 900 minutes.
i. The number of students with viewing times is at most 600 minutes.
ii. Display data in suitable diagram.

Sr. No	Viewing Time (minutes)	No. of Students
1	600-699	76
2	700-799	68
3	800-899	62
4	900-999	48
5	1000-1099	22
6	1100-1199	6

Q 4. **5 * 2 = 10**

a) Compute the mean, median, and mode for the following 10 incomes:

$10,000 $8,000 $7,000 $5,000 $7,000 $1,000,000 $9,000 $11,000 $8,000 $11,000

Which measure of central tendency is most meaningful in this case and why?

b) Explain time series, cross sectional and pooled data with examples.

Q 5. A graduate student in Economics was asked to grade 40 final exams, selected at random from several large sections of an introductory course. The resulting scores are found below. — **10**

77	68	86	84	95	98	87	71
84	92	96	83	62	83	81	85
91	74	61	52	83	73	85	78
50	81	37	60	85	100	79	81
75	92	80	75	78	71	64	65

To get information out of the data, she needed to summarize the data. So, present frequency distribution of the data. Also calculate grouped mean, variance, Karl Pearson's coefficient of skewness and standard deviation.