



# UNIVERSITY OF THE PUNJAB

First Semester 2018  
Examination: B.S. 4 Years Programme

Roll No. ....

PAPER: Statistics-I  
Course Code: STAT-101

TIME ALLOWED: 2 hrs. & 30 mins.  
MAX. MARKS: 50

Attempt this Paper on Separate Answer Sheet provided.

## SHORT QUESTIONS

Q2. Explain the following:

(4 marks each)

- Properties of Arithmetic Mean
- Properties of Variance
- Properties of Correlation Coefficient
- Index Numbers
- Components of Time Series.

## SUBJECTIVE

Q3 (a) From a random sample of voters in Rawalpindi, Islamabad, voters are classified by age group, as shown by the following data. (06)

Age Group	18-24	24-30	30-36	36-42	42-48	48-54	54-60	60-66	66-72
Frequency	170	220	260	350	330	300	320	210	150

Calculate Mean and Geometric Mean of the above data.

(b) Following table gives the birth rates and death rates per hundred thousand of a few districts in Punjab. Represent them in a Component bar chart. (04)

Country	Birth Rate	Death Rate
Lahore	330	240
Multan	300	190
Faisalabad	180	80
Gujrat	250	160

Q4 Compute first four Mean moments of the following Data. Also compute coefficient of skewness and kurtosis. (10)

Weight (grams)	65-84	85-104	105-124	125-144	145-164	165-184	185-204
Frequency	90	100	170	100	50	40	50

Q5. (a) The following are the results of height (X) and weight (Y) of 12 persons. (05)

$$\sum x = 766, \quad \sum y = 1700, \quad \sum xy = 109380, \quad \sum x^2 = 49068, \quad \sum y^2 = 246100$$

Estimate a regression line of Y on X from the above data. Also find the correlation coefficient between height and weight.

(b) Calculate the seasonal indices by ratio to moving average method from the following data. Also deseasonalize the data for the year 1944. (05)

Year	Jan	Feb	Mar	April	May	June	July	Aug	Sep	Oct	Nov	Dec
1943	6.2	1.8	0.9	1.4	3.2	2.3	2.2	3.2	3.4	2.7	2.1	2.1
1944	3.3	1.7	0.5	2.2	1.5	2.5	2.8	3.2	4.2	4.5	6.1	2.8



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TIME ALLOWED: 30 mins.  
MAX. MARKS: 10

*Attempt this Paper on this Question Sheet only.*

## OBJECTIVE

Q1. Read the following items carefully and encircle the correct option listed below at each item.  
(One mark for each)

1. The section of statistics which involves the collection, organization, summarizing, and presentation of data relating to some population or sample is
  - a) Inferential statistics.
  - b) An example of a frequency distribution.
  - c) Descriptive statistics.
  - d) The study of statistics.
2. The number of occurrences of a data value is called
  - a) The class limits
  - b) The frequency
  - c) Class interval
  - d) The relative frequency.
3. A large collection of data may be condensed by constructing
  - a) Classes.
  - b) A frequency polygon.
  - c) Class limits.
  - d) A frequency distribution.
4. The cumulative relative frequency for a given class is defined to be
  - a) The proportion of values preceding the given class.
  - b) The proportion of values up to and including the given class.
  - c) The proportion of values for the given class.
  - d) The proportion of values below the given class.
5. A student has seven statistics books open in front of him. The page numbers are as follows: 231, 423, 521, 139, 347, 400, 345. The median for this set of numbers is
  - a) 139.
  - b) 347.
  - c) 346.
  - d) 373.5
6. A cyclist recorded the number of miles per day that she cycled for 5 days. The recordings were as follows: 13, 10, 12, 10, and 11. The mean number of miles she cycled per day is
  - a) 13.
  - b) 11.
  - c) 10.
  - d) 11.2
7. An instructor recorded the following quiz scores (out of a possible 10 points) for the 12 students present: 7, 4, 4, 7, 2, 9, 10, 6, 7, 3, 8, 5. The mode for this set of scores is
  - a) 9.5.
  - b) 7.
  - c) 6.
  - d) 4.
8. Which of the following is not a measure of central tendency?
  - a) Mode
  - b) Variance
  - c) Median
  - d) Mean
9. The most frequently occurring value in a data set is called the
  - a) Spread.
  - b) Mode.
  - c) Skewness.
  - d) Maximum value.
10. The correlation coefficient provides:
  - a) a measure of the extent to which changes in one variable cause changes in another variable.
  - b) a measure of the strength of the linear association between two categorical variables.
  - c) a measure of the strength of the association (not necessarily linear) between two categorical variables.
  - d) a measure of the strength of the linear association between two quantitative variables.