

Questions Bank
B.A Second Year (Semester IV)
Economics
Paper 108 – Statistical Methods

- 1) Define statistics.
- 2) State the scope and significance of statistics.
- 3) State limitations of statistics.
- 4) Discuss the scope, utility and limitations of statistics.
- 5) Distinguish between primary data and secondary data.
- 6) Define secondary data. What are their sources and the precautions necessary for using them.
- 7) Describe the methods of collection of primary data.
- 8) What is a questionnaire? Discuss the main points to be taken into account while designing a questionnaire.
- 9) Discuss briefly the problems that arise in the collection of data.
- 10) It is never safe to take published statistics at their face value. (Bowley) Elucidate the above statement.
- 11) Describe the process of planning a statistical inquiry with special reference to its scope and purposes.
- 12) Define classification. Explain the various ways of classification adopted in statistics.
- 13) Discuss briefly the methods of classification and tabulation of statistical data.
- 14) Define frequency distribution. What problems are involved in constructing a frequency distribution from a given set of data.
- 15) What is statistical table. Explain the essentials of a good table.
- 16) Describe the main steps in tabulation data.
- 17) Discuss the main advantages and disadvantages of tabulation.
- 18) Define graph? What are the main advantages of graph.
- 19) Explain different methods of translating a frequency distribution into a graph.
- 20) What are the uses of graphic presentation of the statistical data. Discuss its limitations
- 21) what do you mean by a cumulative frequency distribution point out its main advantages.
- 22) What is a histogram? How is it constructed.

Unit III

- 1) What are different measures of average? Which of them is known as average of position?
- 2) Define arithmetic mean. Show that the sum of deviations of the variables from their AM is zero.
- 3) What do you mean by weights?

- 4) Discuss the merits of the arithmetic mean as a measure of central tendency.
- 5) Define geometric mean, median and mode. Which is the most representative and why?
- 6) Write a note on the utility and limitations of the major measures of central tendency.
- 7) What do you mean by
 - (a) Quartiles,
 - (b) Deciles, Deciles,
 - (c) Percentiles?
- 8) Distinguish between median and mode.
- 9) Give the empirical relationship between mean, median and mode.
- 10) Write the formula to show the relationship between mean, median and mode.
- 11) Find arithmetic mean from the following table:

| | | | | | | |
|----------------|------|-------|-------|-------|-------|-------|
| Wages (Rs.) | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 |
| No. of workers | 100 | 300 | 400 | 500 | 600 | 700 |

- 12) The expenditure of eight families in rupees are given below:

| | | | | | | | | |
|-------------|----|----|----|----|-----|-----|-----|-----|
| Family | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Expenditure | 40 | 50 | 20 | 70 | 100 | 300 | 250 | 400 |

Calculate arithmetic average by individual observations.

- 13) Find AM of the given frequency distribution:

| | | | | | | | |
|------------------|----|----|----|----|----|----|----|
| Weight (in kgs.) | 40 | 45 | 50 | 60 | 65 | 70 | 80 |
| Persons | 10 | 15 | 20 | 25 | 28 | 30 | 35 |

- 14) Find AM of the following numbers:

- (i) 70, 74, 76, 80, 75, 68, 90, 95, 80
- (ii) 8, 6, 7, 2, 1, 9, 10, 3, 4, 5

- 15) Calculate arithmetic mean for the following data:

| | | | | | | |
|----------------|------|-------|-------|-------|-------|-------|
| Class-interval | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 |
| Frequency | 5 | 6 | 10 | 8 | 4 | 3 |

- 16) From the table below, find the mean.

| | | | | | | |
|----------------|-----|------|-------|-------|-------|-------|
| Salary per day | 1-5 | 6-10 | 11-15 | 16-20 | 21-25 | 26-30 |
| No. of persons | 6 | 8 | 15 | 20 | 28 | 30 |

- 17) Find the arithmetic mean, median and mode from the following data:

| | | | | | | | | | | |
|-----------------|----|----|----|----|----|-----|-----|-----|-----|-----|
| Marks below | 5 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 |
| No. of students | 10 | 25 | 50 | 80 | 90 | 120 | 180 | 200 | 250 | 240 |

- 18) Arithmetic mean of the following frequency distributions is 4.5. Find the missing frequency.

| | | | | | | |
|---------------|---|---|---|----|----|----|
| Variables (X) | 3 | 6 | 8 | 10 | 12 | 14 |
| Frequency (f) | 5 | 3 | - | 4 | 2 | 1 |

- 19) From the data given below, find the combined mean of two series:

| | | |
|------|-----------|-----------|
| | Section A | Section B |
| Mean | 40 | 50 |

| | | |
|--------|----|----|
| Number | 50 | 60 |
|--------|----|----|

20) Amend the following distribution and locate the median from the amended distribution:

| Size | Frequency |
|------------|-----------|
| 10-15 | 10 |
| 16-17.5 | 18 |
| 17.5-20 | 25 |
| 20-30 | 30 |
| 25-30 | 35 |
| 30-35 | 26 |
| | 32 |
| 30 & above | 40 |

Unit IV:

- 1) What do you mean by dispersion?
- 2) Define range, quartile deviation, mean deviation and standard deviation. Discuss their relative merits and demerits.
- 3) Distinguish between variance and coefficient of variance.
- 4) What do you mean by the relative measure of dispersion?
- 5) Define standard deviation?
- 6) Dispersion is known as average of the second order. Give reasons.
- 7) What is meant by mean deviation?
- 8) What are the merits and demerits of standard deviation
- 9) Find the range from the following three sets of data:
Set 1: 4, 8, 10, 16, 18, 20, 25, 30, 35.
Set 2: 4, 6, 5, 20, 21, 22, 23, 28, 29.
Set 3: 10, 20, 30, 40, 50, 60, 70, 80, 90.
- 10) From the following data find the lower quartile, upper quartile, inner quartile range, and the quartile deviation.
28, 30, 5, 60, 42, 58, 51, 32, 28, 29, 130, 132, 150, 17, 18, 25.

11) From the following data, compute quartile deviation:

| Size | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 |
|-----------|------|-------|-------|-------|-------|-------|
| Frequency | 12 | 28 | 30 | 35 | 18 | 7 |

12) Calculate the quartile deviation from the following data:

| Class-interval | Frequency |
|-----------------|-----------|
| 3 or less | 1000 |
| Over 3 up to 6 | 1100 |
| Over 6 up to 11 | 1052 |

| | |
|------------------|------|
| Over 11 up to 12 | 1250 |
| Over 22 up to 44 | 525 |
| Over 44 | 640 |

13) Calculate mean deviation from the following data set.

| Variable (x) | Frequenc y (f) |
|-----------------|-------------------|
| 0 | 14 |
| 1 | 15 |
| 2 | 20 |
| 3 | 8 |
| 4 | 16 |
| 5 | 8 |
| 6 | 4 |
| 7 | 2 |
| 8 | 3 |
| 9 | 1 |
| 10 | - |
| 11 | 0 |
| 12 | - |

14) Calculate the standard deviation from the following data:

| | | | | | | | | | |
|--------------|---|---|---|----|----|----|----|----|----|
| Size of item | 5 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| Frequency | 4 | 5 | 6 | 10 | 12 | 8 | 5 | 4 | 2 |

15) Following figures give the income of 10 persons in rupees. Find the standard deviation.

110, 115, 118, 119, 120, 130, 119, 118, 117, 115.

16) Calculate the arithmetic mean and standard deviation for the following data: 2, 3, 4, 5, 6.

17) Calculate the arithmetic mean and standard deviation for the following data:

| | | | | | | |
|----------------|------|-------|-------|-------|-------|-------|
| Class-interval | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 |
| Frequency | 4 | 6 | 8 | 10 | 4 | 2 |

18) Calculate mean deviation from the following data. What light does it throw on the social conditions of the community? Difference in age between wife & husband:

| | | | | | | |
|----------------|-----|------|-------|-------|-------|-------|
| Diff. in years | 0-5 | 5-10 | 10-15 | 15-20 | 20-25 | 25-30 |
| Frequency | 400 | 399 | 700 | 800 | 850 | 40 |

Unit IV:

- 1) What is mean correlation? Under which categories it can be classified?
- 2) What is a scatter diagram? Draw different scattered diagrams to depict different degrees of correlation.
- 3) Write short notes on:
 - (i) Positive correlation
 - (ii) Coefficient of concurrent deviation.
- 4) Presence of correlation between two variables does not necessarily imply the existence of direct causation. Justify this statement.
- 5) What is rank correlation? What are its merits?
- 6) What is correlation ratio? How is it measured?
- 7) Define rank correlation. How does the coefficient of rank correlation differ from the Karl Pearson's coefficient of correlation?
- 8) What is meant by correlation? Explain the various methods of measuring correlation between two variables.
- 9) Define Karl Pearson's coefficient of correlation.
- 10) Calculate Karl Pearson's coefficient of correlation from the following data:

| | | | | | | | | | |
|-----------------|----|----|----|----|----|----|----|----|----|
| Age of husbands | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
| Age of wives | 13 | 15 | 16 | 18 | 18 | 20 | 21 | 22 | 22 |

- 11) Calculate coefficient of correlation from the following data:

| | | | | | | | | | |
|---|----|----|----|----|----|----|----|----|----|
| X | 55 | 56 | 58 | 57 | 60 | 62 | 65 | 66 | 67 |
| Y | 60 | 62 | 63 | 64 | 70 | 65 | 75 | 68 | 66 |

- 12) Ten students got the following percentages of marks in economics and statistics:

| | | | | | | | | | | |
|---------------------|----|----|----|----|----|----|----|----|----|----|
| Student | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Marks in Economics | 70 | 35 | 55 | 40 | 60 | 72 | 80 | 58 | 65 | 68 |
| Marks in Statistics | 85 | 78 | 82 | 69 | 50 | 57 | 67 | 89 | 88 | 64 |

Calculate Karl Pearson's coefficient of correlation between marks in economics and statistics.

- 13) The following table gives the agewise percentage of failures of the matriculation examinations held in 2002.

| | | | | | | | | | | |
|------------------------|------|------|------|------|------|------|------|------|------|------|
| Candidates | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 |
| Percentage of failures | 35.2 | 38.6 | 41.4 | 35.2 | 36.2 | 35.8 | 40.3 | 46.1 | 50.8 | 51.2 |

Calculate the coefficient of correlation and estimate its probable error. From your result can you assert that failure is correlated with age of the candidate?

- 14) The following table gives the number of blind per lack of population in different age-groups. Find out the correlation between age and blindness.

| | | | | | | | | |
|--------------------------|------|-------|-------|-------|-------|-------|-------|-------|
| Age in years | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 |
| Number of blind per lack | 50 | 55 | 60 | 65 | 100 | 110 | 115 | 120 |

- 15) Two judges at a college homecoming parade ranked 10 floats in the following order:

| | | | | | | | | | | |
|---------|---|---|---|---|---|---|---|---|---|----|
| Float | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Judge A | 6 | 8 | 3 | 3 | 5 | 1 | 6 | 2 | 8 | 4 |

| | | | | | | | | | | |
|---------|---|---|---|---|---|---|---|---|---|---|
| Judge B | 8 | 5 | 4 | 2 | 7 | 2 | 7 | 3 | 6 | 5 |
|---------|---|---|---|---|---|---|---|---|---|---|

Calculate the rank correlation coefficient.

- 16) Calculate the value of coefficient of correlation from the following table giving demand price of a certain luxury goods:

| | | | | | | |
|----------------|----|----|----|----|---|----|
| Price in Rs. | 3 | 4 | 5 | 7 | 9 | 10 |
| Demand in mds. | 65 | 50 | 35 | 13 | 5 | 8 |

- 17) What is an index number? Analyse the use of index number.
- 18) Explain the significance of index numbers.
- 19) How are index numbers constructed? What is their purpose?
- 20) Discuss the steps involved in the construction of index number of prices.
- 21) Discuss various problems that arise in connection with the construction of an index number.
- 22) Distinguish between simple and weighted aggregate method of computing index numbers.
- 23) Define Laspeyre's, Paache's and Fisher's index number. Explain time reversal test and check if this test is satisfied by Paasche's price index number.