

B.A. (Honours) Examination, 2023
Semester-III (CBCS)
Economics

Course: CC-7 (Core)
(Statistical Methods for Economics)

Time: Three Hours

Full Marks: 60

Questions are of value as indicated in the margin

Answer any four questions

1. (a) Consider the following frequency distribution.

Class	10 - 19	20 - 29	30 - 49	50 - 79	80 - 89
Frequency	15	20	30	23	12

(i) Calculate the class boundaries, frequency densities and less than type cumulative frequencies corresponding to the five classes.

(ii) Draw a histogram for the given frequency distribution.

(b) Obtain the first quartile and the median for the frequency distribution

(6+3)+6=15

2. (a) The following distribution shows quantities of rice production (quintal) of 100 farmers:

Production (quintal)	61 - 70	71 - 80	81 - 90	91 - 100	101 - 110	111 - 120
Number of farmers	12	18	f_1	f_2	8	7

It is known that the average production of all farmers is 86.5 quintal and the median production is 85.5 quintal. Find out the missing number of farmers for the two classes (prudent use of change in scale/origin is expected).

(b) A group of 60 men has a mean weight of 53 kg with a standard deviation of 3 kg. Another group of 90 women has a mean weight of 48 kg and a standard deviation of 2 kg. What is the mean and standard deviation of men and women together?

(c) Define Mean Absolute Deviation. For the set of observations 31, 33, 34, 36, 37, 39, 40, calculate the mean deviation about the median.

5+6+4=15

3. (a) If x_1, x_2, \dots, x_n is a set of observations with frequencies f_1, f_2, \dots, f_n , and $y_i = x_i - 10$, then show that standard deviations of x and y are the same.

(b) Why Quartile deviation is a better measure of dispersion compared to Range?

(c) For a frequency distribution with open ended classes, which measure of dispersion can you use?

(c) Identify the following statements as true or false:

- A. Coefficient of variation is only used to compare datasets measured in different units
- B. The coefficient of variation is a measure of heterogeneity in observations
- C. The coefficient of variation will be approximately twice the measure of the mean
- D. The coefficient of variation is measured in the same unit of the variable

5+3+3+4=15