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Module:Math and Stat
University year:2023/2024
Level: Licence 1

Series N03(Part II): Quantitative variable

Exercise 03: In a study on the effectiveness of fertilizers on plant growth. Height measurements of 20 plants were taken

Height	48	50	51	52	57	58
Frequency	3	5	6	3	2	1

Questions:

1. What is the nature of the character to be studied?
2. Calculate the sample size.
3. Give the frequency table.
4. Represent this distribution using the appropriate diagram.
5. Determine the following measures of central tendancy: mean, mode, median, $Q_1$and Q_3.
6. Determine the following measures of variation: variation, standard deviation and range.

Exercise 04: The rate of oxygen consumed by a species of limpet, A cmaca scabra in salt water presented on the table below:

Rate of oxygen	6	7	8	9	10	12
Frequency	7	5	4	10	6	3

Questions:

1. What is the nature of the character to be studied?
2. Calculate the sample size
3. Represent this distribution using the appropriate diagram.
4. Give the cumulative function of frequencies and draw its graph.
5. Determine the following measures of central tendancy: mean, mode, median, $Q_1$and Q_3.
6. Determine the following measures of variation: variation, standard deviation,range and interquartile range.

Exercise 05: We have the cholesterol levels (in mg/l) taken from a sample of 100 women are The following:

Cholesterol levels	[2.40-2.50[	[2.50-2.60[	[2.6-2.7[	[2.7-2.8]
Frequency (n_i)	12	50	18	20

Questions:

1. Determine the nature of the variable studied
2. Determine the modal and the mean cholesterol level (by graph and calculation).
3. Determine the median cholesterol level, Q_1 and Q_3 (by graph and by calculation).
4. Determine the range and the interquartile range of this data set.
5. Determine the variation of cholestrol level and its standard deviation.

Exercise 06: Given the following series of data on the distribution of 60 farms according to their surface area in hectares:

Surface area	[10,20[	[20,30[	[30,40[	[40,50[	[50,60[	[60,70[
Frequency (n_i)	12	8	15	14	7	4

Questions:

1. Represent this distribution using the appropriate diagram.
2. Represent the graph of the cumulative frequencies less than and more than type.
3. Determine the statistics of central tendancy (graphically and by calculation)
4. Calculate the satistics measures of variation.