Banha University Faculty of Agriculture Dep.: Agricultural Economics
Time: two hours Exam score: 60 level: Postgraduate

Course: Social economics statistical analysis

The Second semester of the academic year exam 2019/2020

THE MODEL ANSWER

The first question: Select the answer from the brackets: (Select 5 point only) (20 marks)

1. The variance and ..... shall not be affected if a fixed value is added to or added to the values.
   (Median - mode - standard deviation)
2. ..... is used to find differences between two samples, one descriptive and the other quantitative.
   (Test F - Coefficient of compatibility - Pearson coefficient)
3. ..... Acceptance of the imposition is wrong.
   (Type I error - type 2 error - accidental error)
4. ..... Reject the hypothesis is true
   (Type I error - type 2 error - bias error)
5. The adjusted frequency shall be calculated in the case of unequal groups .....
   - By dividing the original frequency on the unit of the class length
   - by combining the original repetition on the unit of the length of the class
   - by multiplying the original frequency to the unit length of the class

The second question : answer the following : …….. (20 marks)

1. What is the hypothesis? What are its types ? and how can it be verified?

the hypothesis It is a special imposition in the form of society or images of its features the steps to verify hypotheses :

- Formulation of Statistical Hypothesis
- Formulation of alternative hypothesis
- Setting a decision base
- Moral level and critical area
- Make decision

2. What is the statistical variable ? What are its different types and levels ?

Variable is the capacity to change in type or quantity from one individual to another

3. What is the hypothesis? What are the steps to verify hypotheses?

Hypothesis: It is a temporary solution to a specific problem that a researcher has.
There are several steps to follow when performing a statistical hypothesis test:

1. The formulation of the (statistic) hypothesis does not exist:
2. Formulating the Alternative Hypothesis:
3. Setting a rule for decision making:
4. Level of morale and critical region:

5. Decision-making:

That is, by comparing the value resulting from the application of the decision-making rule and the critical value, the appropriate decision is taken. If the calculated value from the application of the rule is greater than the critical, the nihilistic or statistical assumption is rejected, and if it is less the nihilistic hypothesis is accepted.

4. What are the measures of dispersion ?

It shows us how different the data is between them and the extent of the disparity and change between its vocabulary. Are they close to or far apart?

From the previous chapter, we find that measures of central tendency do not show how values spread in distribution. To illustrate this, we assume that we have two sets of data:

Y1: 10, 27, 38

Y2: 22, 24, 25, 29

With an estimate of the mean of Y2 and Y1, we find that

That is

It is clear that the mean of the two groups are equal, which gives an initial picture of the similarity of the two groups, but this result is misleading, as the vocabulary of the second group appears to be homogeneous with each other meaning that they are dispersed little, while we note that the vocabulary of the first group seems heterogeneous, that is, its dispersion is large. This is because the total range at the level of the two groups is:

5. What are the factors affecting sample size ?

These considerations can be summarized as follows:

1- Determining the purpose of the research, and accordingly, determining the required data and the type of unit to be used as a basis for drawing the sample.

2- Determine the society from which data will be collected and define it accurately to know the elements that make up it.

3- Determining the required data, which depends on the purpose of the research and the problems to be studied.

4- Determine how to collect data through direct contact, such as a personal interview or indirect contact, such as mail and phone.

5- Determine the exact unit of measurement.

6- Sample framework: It is the list made up of sampling units that make up the community. For example, if a sample is drawn from workers in a company, we must have a list of all workers in this company.

The third question: answer the following (20 marks)

The following table shows the quantity of wheat produced in the Ardab as a dependent variable and the amount of fertilizer with nitrogen as an independent variable

x	10	11	12	13	14
y	3	6	9	10	12

Required:

1. Find and interpret the coefficient of correlation and coefficient of selection statistically.
2. Slope y / x. 3 - Estimation of the amount of production if the amount of fertilization and became 20 units Azoth?

THE ANSWER

$(Y-\overline{Y})^2$	$(X-\overline{X})^2$	$(Y-\overline{Y})(X-\overline{X})$	$(Y-\overline{Y})$	$(X-\overline{X})$	Y	X
٢٥	٤	١٠	-٥	-٢	٣	١٠
٤	١	٢	-٢	-١	٦	١١
١	٠	٠	٠	٠	٩	١٢
٤	١	٢	٢	١	١٠	١٣
١٦	٤	٨	٨	٢	١٢	١٤
٥٠	١٠	٢٢	٠	٠	٤٠	٦٠

$$R=\frac{\sum(X-\overline{X})(Y-\overline{Y})}{\sqrt{\sum(X-\overline{X})^2\sum(Y-\overline{Y})^2}}$$

$$R=\frac{22}{\sqrt{10\times 50}}=\frac{22}{\sqrt{500}}=0.98$$

$R^2 = (0.98)^2 = 0.96$

$$B=\frac{\sum(X-\overline{X})(Y-\overline{Y})}{\sum(X-\overline{X})^2}=\frac{22}{10}=2.2$$

$$A=\overline{Y}-B\overline{X}$$
$$A=8-2.2\times 12=-18.4$$
$$Y=-18.4+(2.2)(20)=25.6$$

Prof. Dr. / Essayed Hassan Gado

With my best wishes for your success and the Success