Victoria University

of Bangladesh

Assessment Topic:

Final Assessment

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<u>Ans:-to the question no-01</u>

* <u>Ans:</u>- <u>Concept of Average</u>:- Average are used to represent a large set of numbers with a single number. It is a representation of all the numbers available in the data set. The average is calculated by adding all the data values and dividing it by the number of the data point. The age of the students in a class is taken and an average is calculated to give a single value of the average age of the students of a class. Average has numerous applications in our day-to-day life.

The average is known as the arithmetic mean which is the sum of all numbers in a collection, divided by the count of the numbers present in the collection. In other words, the average is the ratio of the sum of all given observations to the total number of observations. The average formula is —

Average = Sum of the observations / Number of observations

$$Average = \frac{Sum\ of\ all\ observations}{Number\ of\ observations}$$

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* **Major Characteristics of a Good Average:-** There are twelve major characteristics of a good average.

    ① Good Average should be based on all the observations.

    ② Good Average should not be unduly affected by extreme value.

    ③ Good Average should be rigidly defined.

    ④ Good Average should be easy to calculate and simple to understand.

    ⑤ Good Average should be capable of further algebraic treatment.

    ⑥ Good Average should be found by graphic methods also.

    ⑦ Good Average should not be affected by variations of sampling.

    ⑧ Good Average should not be affected by skewness.

    ⑨ Good Average should be popular.

    ⑩ Good Average should have a clean and stable Definition.

⑪ Good Average should be Absolute Number.

⑫ Good Average should be possible to find central tendency for open and class intervals.

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Ans: to the question no-02

＊ **Ans:-** Dependent and Independent variable:— There are two most common types of variable are the dependent variable and independent variable. A variable is said to be independent, whose change influence another variable, while if the variable is dependent. it will change in response to the change in some other variable.

The dependent of the former on the latter is being examined by the statistical models. So here in this article we are going to discuss some important

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Points of difference between independent and dependent variable. Comparison chart there are bellow —

Basis for Comparison	Independent variable	Dependent variable
Meaning	Independent variable is one whose values are deliberately changed by the researcher in order to obtain a desired outcome	Dependent variable refers to a variable which changes its values in order to reciprocate change in the values of independent variable
What is it?	Antecedent	Consequent
Relationship	Presumed Cause	observed effect
Regarded as	Experiment Controller	Experiment Measure
Values	Manipulated by the researcher	Measured by the researcher
Usually denoted by	"X"	"Y"

✱ Independent variable and Dependent variable Diagram there are bellow —

[Independent variable]
→ [Affects change in the]
[Dependent variable]
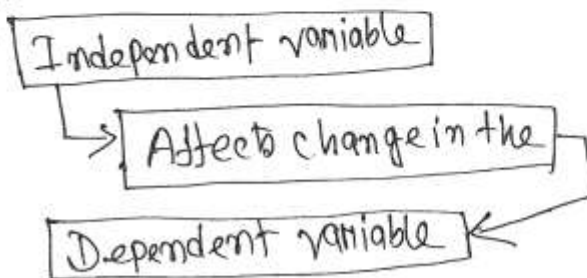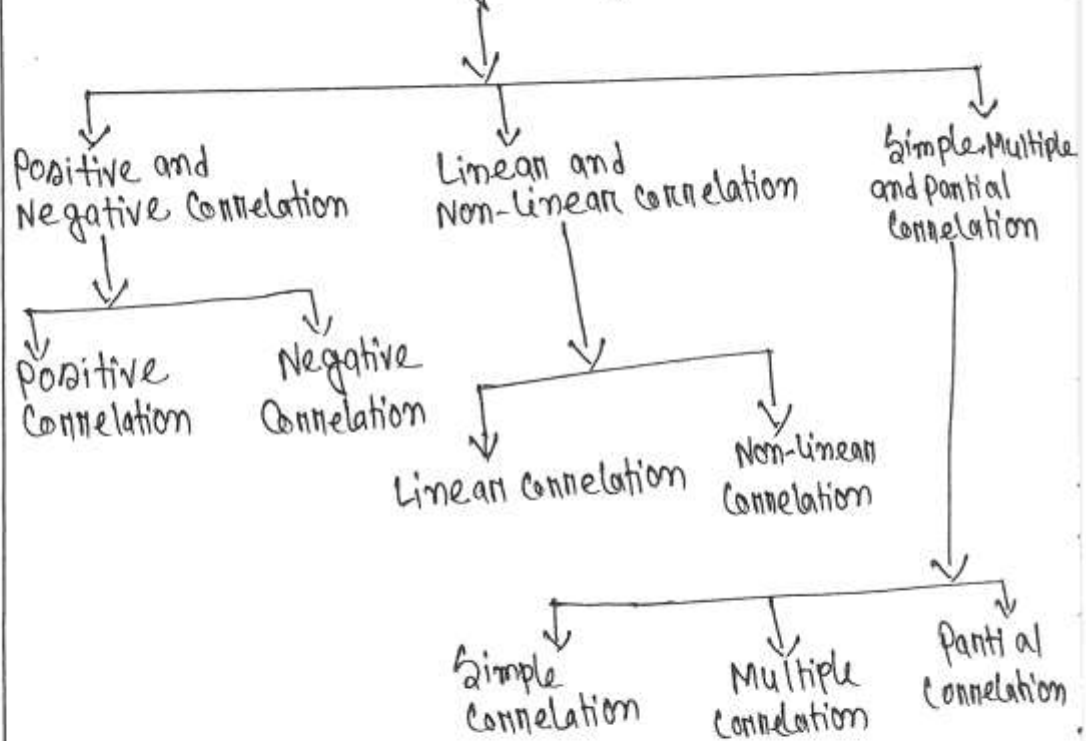
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* <u>Different Categories of Correlation</u>:- Correlation categories there are ~~bellow~~ below discuss —

Categories of Correlation

- Positive and Negative Correlation
- Linear and Non-Linear Correlation
- Simple, Multiple and Partial Correlation

Positive and Negative Correlation:
- Positive Correlation
- Negative Correlation

Linear and Non-Linear Correlation:
- Linear Correlation
- Non-Linear Correlation

Simple, Multiple and Partial Correlation:
- Simple Correlation
- Multiple Correlation
- Partial Correlation

* <u>Positive Correlation</u>:- When two variables move in the same direction. When one increases the other also increases and vice-versa, then such a relation is called a positive correlation. Such as —
Relationship between the price and supply, income and expenditure, height and weight etc.

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* <u>Negative Correlation:-</u> When two variable move in opposite directions. When one increases the other decreases and vice-versa, then such a relation is called a negative Correlation. Such as—

The relationship between the price and demand, temperature and sale of woollen garments etc.

* <u>Linear Correlation:-</u> Lineare Correlation is a Constant Change in the amount of one variable due to a Change in another variable, it is known as Linear Correlation.

* <u>Non-Linear Correlation:-</u> When there is no Constant Change in the amount of one variable due to a Change in another variable, it is known as a non-linear Correlation. This term is used when two variable donot Change in the same ratio. This shows that it does not form a straight-line relationship.

* <u>Simple Correlation:-</u> Simple Correlation implies the study between the two variable only. For Example—① the relationship between price and demand ② The relationship between price and money supply.

* <u>Multiple Correlation:-</u> Multiple Correlation implies the study between three or more three variables simultaneously. The entire set of independent and dependent variable is studied simultaneously.

* <u>Partial Correlation:-</u> Partial Correlation implies the study between the two variables keeping other variables Constant.

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<u>Ans: to the question no- 03</u>

* <u>Ans:</u>— <u>Chi-square:</u>— The Chi-square test is an important test amongst the several tests of significance developed by statisticians. Chi-square, symbolially written as X^2, is a statistical measure used in the context of sampling analysis for comparing a variance to a theoretical variance. ~~As a non-parametric test~~ The chi-square test is applicable in large number of problems. The test is, in fact, a technique through the use of which it is possible for all researchers to ① test the goodness of fit ② test the significance of association between two attributes ③ test the homogeneity or the significance of population variance.

* Evaluate properties of chi-square test:— The properties of chi-square test are listed below —
  / Variance is equal to double of the degrees of freedom.
  / Mean distribution is equal to the degrees of freedom.
  / If the degrees of freedom increases then the chi-square distribution curve becomes ~~for~~ normal.

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The chi-square value is often used to judge the significance of population, i.e, we can use the test to judge if a random sample has been draw from a normal population with mean(N) and with a specified variance (σ_p^2). The test is based on x^2 distribution. Such a distribution we encounter when we deal with collections of values that involve adding up squares. variances of samples require unto add a collection a squared quantities and, thus have distribution that are related to "x^2" distribution. Would have the same distribution as "x^2" - distribution with $(n-1)$ degrees of freedom.

The "x^2" distribution is not symmetrical and all the values are positive. For making use of this distribution, one is required to know the degrees of freedom since for different degrees of freedom we have different curves. The sim smaller the number of degrees of freedom, the more skewed is the distribution. ~~curve~~

~~* Uses of chi square test :~~ the

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* Ans:— <u>Report</u>:— Report is considered a major component of the research study for the research task remains incomplete till the report has been presented or written. As a matter of fact even the most brilliant hypothesis, highly well designed and conducted research study and the most striking generalizations and findings are of little value unless they are effectively communicated to others. The purpose of research is not well served unless the findings are makes known to others.

Research results must invariably enter the general store of knowledge. All this explains the significance of writing research report. There are people who do not consider writing of report as an integral part of the research process. But the general opinion is in favour of treating the presentation of research results or the writing of report as part and parcel of the research →

Project. Writing of report is the last step in a research study and requires a set of skills some what different from those called for in respect of the earlier stages of research. This task should be accomplished by the researcher with utmost care, he may seek the assistance and guidance of experts for the purpose.

\# Features of a good business report:- A good business reports serve as a means of communication within an organization and with external stakeholders. These reports present information related to a company's performance, operations or specific projects. The important characteristics of a good business report include –

  ① Purpose and Business Focus.

  ② Audience Centered.

  ③ Standardized Structure.

  ④ Data Analysis and Visual Aids.

  ⑤ Objectivity and Credibility.

  ⑥ Actionable Insights.

⑦ Professional Language and Tone.

⑧ Conciseness and Clarity.

⑨ Timeliness.

⑩ Relevance to Business objectives.

⑪ Review and Editing.

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