

VICTORIA UNIVERSITY OF BANGLADESH



Assignment On

Course Name: *statistics*

Course Code : *STA-235*

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Ans. to the Q. No- 1

① Definition of a variable: A variable is a name given to a value that can change or has a value that can be different each time it is used. In other words, a variable is a symbol that represents a value that can be modified or reassigned during the execution of a program. Variables are used to store and manipulate data in a program.

Types of variables: There are several types of variables.

* Scalar variable: A scalar variable is a variable that holds a single value, such as an Integer, character, or floating-point number.

* Array variable: An array variable is a collection of scalar variables that are stored in contiguous memory location. Arrays are useful for storing collections of data that have the same data type, such as a list of integers or a list of characters.

* List variable: A list variable is similar to an array variable, but it can contain elements of different data types. Lists are ~~more~~ commonly used in programming languages like Python and JavaScript.

* structure variable: A structure variable is a collection of variables that are stored together in memory. Structures are often used to represent complex data types, such as objects or records.

* union variable: A union variable is a variable that can hold multiple values, but only one value at a time. Unions are commonly used in programming language like C and C++.

* Reference variable: A reference variable is a variable that holds the memory address of another variable, rather than the actual value.

In summary, variables are essential components of programming language, and understanding the different types of variable is crucial of writing effective and efficient code.

Ans. to the Q.No-2

2 studying statistics is important for several reasons as it provides essential tools and methodologies for understanding, analyzing, and interpreting data. Here are some key reasons why statistics is studied:

- ① Informed Decision-making.
- ② understanding variability.
- ③ Designing Experiments and Studies.
- ④ Interpreting Data.
- ⑤ critical thinking and literacy.
- ⑥ Application Across Disciplines.
- ⑦ Predictive Analysis and Forecasting.

* A sample is a subset of data on a portion of a population that is selected for analysis, experimentation, or testing. In other words, a sample is a representative group of individuals or items that taken from a larger population to make inferences about the population.

There are several types of samples including:

Random sample: A random sample is a subset of the population that is selected randomly and independently.

It will not have any bias or systematic error.

Stratified sample: A stratified sample is a type of random sample where

the population is divided into subgroups, or strata, based on certain characteristics, such as age, gender, or location.

Systematic sample: A systematic sample is a type of random sample where every k th item is selected from the population where k is a fixed number.

Convenience sample: A convenience sample is a subset of the population that is easily accessible and convenient to select. It may not be representative of the entire population.

Ans. to the B.No-4

\bar{x} - The 'mean' is the average of a set of numbers,

Calculated by adding them up and dividing by the total

count. For example, if we have the numbers [3, 5, 7], the

$$\text{mean is } (3+5+7)/3 = 5.$$

The 'standard dev't. deviation' shows how much the numbers

vary from the mean. In this case, the deviation from

the mean (5) are [-2, 0, 2], and after calculating, the

standard deviation would show how spread out these

Numbers are around the mean. A low standard deviation

means the numbers are close to the mean, while a high one

indicates more spread.