**SECTION:B**

**12)**

**Ans:** Correlation is when two variables appear to change in sync.

The different types of correlations are: Positive correlation, Negative correlation and no correlation.

Example: When one increase and the other decrease or one decrease and the other gets increase.

Causation means one variable directly influencesanother.

The two variable are correlated with each other.

Example: When one variable increases the other decreases.

**13)**

**Ans:** Sampling is important because it allows us to study a large data without having to examine every individual case, which would often be too time-consuming or even impossible. By selecting a sample, we can make inferences about the whole population with reasonable accuracy.

Real world example for sampling

Quality control in manufacturing of cars or any other goods.

Here we can take the example of pistons for engines. The company manufactures thousands of pistons in a day so it is very hard to check each piston separately so instead of this the examining team will take a few pistons randomly and check them so they can get an overall idea.

**14)**

**Ans:**  **Null Hypothesis:** The null hypothesis is a statement in statistics that assumes there is no effect, no difference or no relationship between two variables.

**Alternate Hypothesis:** It states that there is an effect, a difference, or a relationship between two variables.

**Significance level(a):** The significance level (α) is the probability of rejecting the null hypothesis (H₀) when it is actually true. It represents the acceptable risk of making a Type I error.

**P-value**: The probability value is a measure used in hypothesis testing to determine the strength of the evidence against the null hypothesis (H₀). It represents the probability of observing the data assuming that the null hypothesis is true.