

COMPUTER SCIENCE

Unit no 09: Data Science and Data Gathering

Short Answer Questions:

1. What is the difference between qualitative and quantitative data?

Qualitative data is information that describes qualities or characteristics. It is not measured in numbers. Instead, it uses words or labels. For example, the color of your shirt, the type of music you like, or the names of your friends are all qualitative data. This type of data helps us understand **what something is like**.

Quantitative data, on the other hand, is all about numbers. It tells us how much, how many, or how often something happens. For example, your age, your height, the number of students in a class, or the marks you get in a test are all quantitative data. This data is used when we need to **measure or count** something.

2. Give an example of continuous data and explain why it is considered continuous.

Continuous data consists of values that can take any number within a given range, including fractions or decimals.

Example: student heights (150.5 cm, 160.2 cm), fruit weights (1.5 kg, 2.2 kg), and room temperature (22.5 °C)

3. Which method would you use to collect opinions from a large group of people about a new school policy?

Questionnaires are similar to surveys but are often written forms that people fill out. They usually have a set of questions that need to be answered.

4. What type of data is the number of students in your class?

The number of students in your class is quantitative (numerical) data, specifically discrete data, because it represents a countable quantity.

5. Why is it important to organize data into tables or charts before analyzing it?

Proper organization saves time. Think about searching for a book in a messy room versus a neatly arranged bookshelf. Similarly, when data is organized it is easier to find and analysis.

6. What is one advantage of using online tools like Google Forms for collecting survey data?

A free tool from Google that helps you create surveys and collect responses online.

Link for Google Forms is <https://forms.google.com>

7. Why might you need to integrate data from different sources when working on a project?

Data integration involves combining information from different sources to get a complete perspective.

1. Organize Data: Put all your saved information into one place, such as a document or spreadsheet.

2. Compare and Merge: Review data from different sources and find common themes. For instance, if many sources say that social.

8. Describe a scenario where discrete data might be more useful than continuous data.

When a school organizes activities and wishes to track the number of students who attend each one, discrete data is more relevant than continuous data.

9. Explain why data visualization is important. How does it help in understanding complex information?

Data visualization is important because it makes understanding data much easier. Imagine trying to understand a list of hundreds of numbers. It's tough, right? But if those numbers are displayed as a graph, it's much easier to see what's going on.

10. Describe what a line graph is used for and provide an example of data that could be displayed using a line graph.

Line graphs, often known as line charts or line plots, are data visualization tools. It is a type of graph that depicts data in a graphical format, making the raw data more intelligible.

Example: A chart displaying the number of students in a class that attend school each day for a week.

11. Explain the use of scatter plots in visualizing continuous data. Provide an example of a situation where a scatter plot would be useful.

A scatter plot is a useful tool for displaying the relationship between two variables, recognizing patterns like positive, negative, or no association.

Example:

