

Unit 07

Digital Literacy

Multiple Choice Questions (MCQs)

MCQ	1	2	3	4	5	6	7
Answer	A	B	B	C	B	C	C

Short Questions

Q1. Define digital literacy and its significance.

Digital Literacy

Digital literacy means knowing how to find, create, evaluate, communicate and share digital content. It includes digital tools such as cell phones, social media, smart devices and Internet.

Significance

- Essential skill for the digital age
- Critical thinking and problem-solving
- Online safety and security

Q2. Differentiate between simulations and prototypes.

Simulation and Prototype

Simulation	Prototype
A virtual model that replicates real-world processes or systems to study their behavior.	A preliminary version of a product used to test and refine concepts.
To analyze and predict outcomes in a controlled environment.	To evaluate and improve design, functionality and usability.
It is used in training, education, research and testing theories.	It is used in product development, testing design concepts and gathering user feedback.
For example , flight simulators and climate models.	For example , early versions of smartphones and car models.

Q3. Write steps to design a Google form to conduct a survey.

Steps

1. Open your web browser and go to “docs.google.com/forms”
2. Click on the “**Blank form**” option to create a new form.
3. Click on “**Untitled form**” and type the name of your form. A blank question will appear by default.
4. Click on “**Untitled Question**” in the text box and type your question. The *default* format is multiple choice but you can change it.
5. Add your options one by one in the options section. You can assign score to each question if required.

6. After adding all questions, click on the **three dots** in the top right corner to share the link with participants. Note that Google form saves *automatically*.

Q4. Write short note on Data simulation.

Data Simulation

- *Data simulation* is an indirect method of data collection that is used to generate data for a research question.
- Simulation is used to explore complex theories and gain better insight which might be challenging to obtain from real-world data.
- A real-world **example** of simulation is a pilot learning to fly in an aircraft simulator.

Q5. How reports are a good tool of data presentation?

Reports

- Reports help to communicate complex information in a clear and understandable manner.
- They help decision-makers to understand complex data and make informed decisions.
- They are used to present data in a structured and organized format.
- The structured format ensures that the information is expressed in a logical manner.

Long Questions

Q1. Argue about any two advanced data collection strategies in detail.

Data Collection Strategies

Two commonly used advanced data strategies are given below.

- Simulations
- Prototypes

Simulation

- Simulation is an indirect method of data collection that is used to generate data for a research question.
- It allows a researcher to observe the behavior of the model using artificial data.
- Simulation is used to explore complex theories and gain better insight which might be challenging to obtain from real-world data.
- A real-world **example** of simulation is a pilot learning to fly in an aircraft simulator.

Prototypes

- Prototype is a preliminary version of a product used to test and refine concepts.
- It is used to evaluate and improve design, functionality and usability.
- It is used in product development, testing design concepts and gathering user feedback.

Some examples of prototypes in data collection are the following.

- Survey prototype
- Questionnaire prototype,
- Data collection tool prototype
- Interview prototype
- Data visualization prototypes

Q2. Debate about the important aspects to consider for conducting a better qualitative interview.

Aspects For A Better Qualitative Interview

You can consider the following aspects for conducting a better qualitative interview.

1. Define Research Question or Objective

First clearly define your objective or research question. A well-defined research question helps to focus on the relevant aspects of participant's perspectives.

2. Participants Selection

The selection of right participant is important for getting relevant answers. They should have knowledge about your topic of interest. Select participants from different backgrounds and experiences for reliable results.

3. Obtain Informed Consent

It is essential to get informed consent from the participants before starting the interviews. They must know the purpose of research, procedures, risks and benefits.

4. Develop An Interview Guideline

A comprehensive guide is necessary for the participants. It consists of open-ended questions designed to obtain detailed answers from the participants.

5. Interviewer Training

The interviewer must be given training to learn necessary skills required for the interview.

6. Recording Equipment

It is important to record the interview properly. It helps you to review multiple times for true understanding of the participants to avoid bias.

7. Comfortable Environment

The interview must be conducted in a comfortable environment to avoid distractions. A relaxed environment encourages the participants to give better responses.

8. Conduct the Interview

The interviewer should start the interview by introducing himself. The interviewer should speak freely and provide the answer comfortably.

9. Respect Participants' Perspectives

The interviewer should show respect for participants' responses even if he differs from his opinion. He should not make any judgments or comments during the interview.

10. Transcribe and Analyze Data

The accurate transcription and analysis are essential to ensure that the data reflects the participants' views correctly. The analysis of data helps to get meaningful conclusions.

Q3. If you have to conduct a qualitative interview, which five steps would you necessarily follow? Give reasons for your selection.

Five Steps To Conduct A Qualitative Interview

If I would conduct a qualitative interview, I would follow these five steps.

1. Define Research Question or Objective

First clearly define your objective or research question. A well-defined research question helps to focus on the relevant aspects of participant's perspectives.

2. Develop An Interview Guideline

A comprehensive guide is necessary for the participants. It consists of open-ended questions designed to obtain detailed answers from the participants.

3. Participants Selection

The selection of right participant is important for getting relevant answers. They should have knowledge about your topic of interest. Select participants from different backgrounds and experiences for reliable results.

4. Obtain Informed Consent

It is essential to get informed consent from the participants before starting the interviews. They must know the purpose of research, procedures, risks and benefits.

5. Transcribe and Analyze Data

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Q4. Imagine you want to track plant growth over time. How would you design a system to collect data on this?

Tracking Plant Growth

To track plant growth over time, you need a simple system that regularly collects data about the plant's height, health, and environment. Here's how you can design such a system:

Decide What to Measure

- **Height:** Measure how tall the plant is at regular intervals.
- **Number of Leaves:** Count the leaves to see if the plant is growing well.
- **Health:** Note the color and condition of the leaves (green = healthy, yellow = issues).
- **Environment:** Record factors like sunlight, water, and soil conditions.

Create a Schedule

Choose specific times to check your plant. For example, measure it every morning or every week. This consistency helps you get accurate data.

Tools You Will Need

- **Ruler or Measuring Tape:** To measure the height of the plant.
- **Notebook or Spreadsheet:** To write down the data or record it on a computer.
- **Camera:** To take photos of the plant for visual records.
- **Sensors (optional):** If you want advanced tracking, you can use sensors to monitor soil moisture, temperature, and light levels.

How to Collect Data

- **Measure the Plant:** Use the ruler to check the height and write it down.
- **Count the Leaves:** Count the number of leaves and note any changes (new leaves, fallen leaves).
- **Observe the Plant:** Look for signs of health, like leaf color or any pests.
- **Check the Environment:** Record how much water you give it, how much sunlight it gets, and if the soil feels dry or moist.

Record the Data

- Keep a journal or create a table with columns for:
 - Date
 - Plant Height
 - Number of Leaves
 - Observations (color, health, etc.)
 - Water/Sunlight/Soil details

6. Analyze the Data

After a few weeks, look at your notes or charts to see patterns. Is the plant growing taller? Are the leaves healthy? If growth slows down, check if it's getting enough water or sunlight.

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