



# INDIAN SCHOOL AL WADI AL KABIR

<b>Class: IX</b>	<b>Department: Computer Science</b>
<b>QUESTION BANK</b>	<b>ARTIFICIAL INTELLIGENCE</b>

## CHAPTER-1 INTRODUCTION TO AI- AI PROJECT CYCLE & AI ETHICS

### Multiple Choice Questions (MCQs)

1. Which stage of the AI Project Cycle results in a "Problem Statement Template"?
  - A) Data Acquisition
  - B) Problem Scoping
  - C) Modeling
  - D) Evaluation
  - **Answer: B**
2. Which AI domain focuses on enabling machines to comprehend and manipulate human language?
  - A) Computer Vision (CV)
  - B) Statistical Data
  - C) Natural Language Processing (NLP)
  - D) Deep Learning
  - **Answer: C**
3. Data used to provide input to a system for it to learn is known as:
  - A) Testing Data
  - B) Processed Data
  - C) Training Data
  - D) Resultant Data
  - **Answer: C**

4. **In which modelling approach does the developer define the relationships and patterns in the data?**
- A) Learning-based approach
  - B) Rule-based approach
  - C) Neural Network approach
  - D) Deep Learning approach
  - **Answer: B**
5. **Which ethical principle ensures that AI technology works for everyone regardless of their background or ability?**
- A) Privacy
  - B) Inclusion
  - C) Human Rights
  - D) Bias
  - **Answer: B**

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**DESCRIPTIVE TYPE QUESTIONS**

**(2-Mark)**

1. **Define Artificial Intelligence according to the source.**
- AI is termed when a machine mimics **human intelligence**, can solve **real-world problems**, improves on its own through **past experiences**, and can predict or make decisions independently.
2. **List the "4Ws" used in Problem Scoping and briefly state what they refer to.**
- The 4Ws are **Who** (stakeholders), **What** (nature of the problem), **Where** (context/location), and **Why** (benefits of solving the problem).
3. **What is the difference between Training Data and Testing Data?**
- **Training Data** is the input given to the system to help it learn, while **Testing Data** is the result dataset or processed output used to check the system's performance.

#### 4. What is "Overfitting" in the context of AI evaluation?

- Overfitting occurs when a model is evaluated using the same data used to build it. The model **simply remembers the training set** and will always predict the correct label for those points, making it unreliable for new data.

#### 5. Distinguish between Morals and Ethics.

- **Morals** are beliefs dictated by society that vary between cultures, whereas **Ethics** are guiding principles an individual chooses to decide what is good or bad.

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### DESCRIPTIVE TYPE QUESTIONS

(4-Mark)

#### 1. Explain the five main steps of the AI Project Cycle.

- The steps are:
  1. **Problem Scoping:** Identifying the problem and stakeholders using the 4Ws.
  2. **Data Acquisition:** Collecting reliable data from authentic sources to form the project's base.
  3. **Data Exploration:** Using statistical methods to visualize data and discover patterns.
  4. **Modeling:** Developing algorithms (mathematical approaches) to get intelligent outputs.
  5. **Evaluation:** Testing the model's reliability by comparing its outputs with actual answers.

#### 2. Compare and contrast the Rule-based and Learning-based modelling approaches.

- In a **Rule-based approach**, the developer defines the patterns and rules; the machine strictly follows these instructions and compares test data against labeled training data. In a **Learning-based approach**, the developer does not define the patterns. Instead, random, often unlabelled data is fed to the machine, which then discovers its own trends and clusters based on observed features.

### 3. Describe the relationship between AI, Machine Learning (ML), and Deep Learning (DL).

- **AI** is the umbrella term for any technique mimicking human intelligence. **ML** is a subset of AI that allows machines to improve at tasks through experience and learning from new data. **DL** is a subset of both AI and ML that uses artificial neural networks and vast amounts of data to train itself and discover complex patterns automatically.

### 4. Identify and explain the four key ethical principles that affect AI solutions.

The principles are:

- **Human Rights:** Ensuring AI does not harm people or take away basic freedoms.
- **Bias:** Avoiding unfairness that results from training AI on incomplete or one-sided data.
- **Privacy:** Protecting personal information collected by AI tools and not sharing it without consent.
- **Inclusion:** Making sure technology is accessible and functional for all people, regardless of language or ability