1Q. Define Artificial intelligence and provide examples for its applications.

Artificial intelligence (AI) refers to the simulation of human intelligence in machines that are programmed to think and act like humans. It encompasses various techniques such as machine learning, natural language processing, computer vision, and robotics.

Examples of AI applications include virtual assistants like Siri and Alexa, self-driving cars, recommendation systems used by Netflix and Amazon, spam filters in email, and facial recognition technology used in security systems and social media platforms.

2Q. Differentiate between supervised and unsupervised learning techniques in ML.

Supervised Learning:

In supervised learning, the algorithm learns from labeled data, meaning it's provided with inputs and corresponding outputs to learn from. It's like having a teacher guiding the learning process.

Unsupervised Learning:

Unsupervised learning deals with unlabeled data. Here, the algorithm tries to find patterns or relationships in the data on its own without any guidance. It's like exploring a new territory without a map or directions.

3Q. What is python? Discuss its main features and advantages.

Python is a versatile programming language known for its simplicity and readability. Its main features include:

1. Readability: Python's syntax is clear and easy to understand, making it accessible for beginners and efficient for experienced programmers.

2. Versatility: It supports various programming paradigms, including procedural, object-oriented, and functional programming, making it suitable for a wide range of tasks.

3. Large Standard Library: Python comes with a vast collection of modules and libraries for different purposes, which helps developers accomplish tasks quickly without reinventing the wheel.

4. Community and Support: Python has a large and active community of developers who contribute to its growth, provide support, and create third-party libraries to extend its capabilities.

Advantages of Python:

simplicity, readability, versatility, extensive libraries, and strong community support, making it an ideal choice for tasks ranging from web development and data analysis to artificial intelligence and automation.

4Q. What are the advantages of using python as a programming language for AI and ML?

Python is great for AI and ML because it's easy to learn, has lots of ready-to-use tools and libraries, and a big community to help out. It lets you quickly build and experiment with models, and it works well with other technologies. Plus, it's good at handling big data and scaling up when needed.

5Q. Discuss the importance of indentation in python code in simple way.

In Python, indentation is important because it tells the interpreter which lines of code belong together in blocks. It's like organizing your code neatly into groups. Without proper indentation, Python won't understand the structure of your code and might give you errors or unexpected results. So, by indenting your code correctly, you make it clear and easy to read for both humans and the Python interpreter.

6Q. Define a variable in python. Provide examples of valid variable names.

In Python, a variable is like a container that holds data. You give it a name and assign a value to it.

For example:

my\_variable = 10

Here, my\_variable is the name of the variable, and 10 is the value assigned to it.

Valid variable names in Python can contain letters, numbers, and underscores (\_), but they can't start with a number.

7Q. Explain the difference between a keyword and an identifier in python.

In Python, keywords are special reserved words that have predefined meanings and purposes within the language. They cannot be used as identifiers (variable names, function names, etc.). Examples of keywords include if, else, for, while, def, class, and return.

Identifiers are names given to various elements in Python such as variables, functions, classes, etc. They are user-defined and can be chosen freely (with some restrictions). Identifiers must follow certain rules, like starting with a letter or underscore, and can't be the same as Python keywords.

8Q. List the basic data types available in python .

In Python, the basic data types include:

1. Integer (int): Whole numbers without decimal points.

2. Float (float): Numbers with decimal points.

3. String (str): Sequence of characters, enclosed in single or double quotes.

4. Boolean (bool): Represents truth values, either True or False.

5. List: Ordered collection of items, mutable.

6. Tuple: Ordered collection of items, immutable.

7. Dictionary (dict): Collection of key-value pairs.

8. Set: Unordered collection of unique items.

These data types form the building blocks for more complex data structures and operations in Python.

9Q. Describe the syntax for an if statement in python.

In Python, the syntax for an if statement is:

if condition:

# Code block to execute if condition is True

statement1

statement2

....

Here's a breakdown:

- if: Keyword indicating the start of the conditional statement.

- condition: An expression that evaluates to either True or False.

- : : Colon to denote the start of the code block associated with the if statement.

- Indentation: All statements inside the if block must be indented to indicate they belong to the block.

- statement1, statement2, ....

Python code to execute if the condition is True

10Q.Explain the purpose of elife statement in python.

The elif statement in Python is used to check additional conditions after the initial if condition is evaluated as false. It stands for "else if".

Examples:

if condition1:

# Code block to execute if condition1 is True

statement1

elif condition2:

# Code block to execute if condition1 is False and condition2 is True

statement2

elif condition3:

# Code block to execute if condition1 and condition2 are False and condition3 is True

statement3

else:

# Code block to execute if none of the above conditions are True

statement

If condition1 is false, the elif statement evaluates condition2 . If condition2 is true, the associated block of code is executed. If condition2 is false, the next elif statement is evaluated, and so on. If none of the conditions are true, the else block is executed.