1. Define Artificial Intelligence (AI) and provide examples of its applications

A).Artificial intelligence (AI) involves machines mimicking human intelligence, enabling tasks like speech recognition and self-driving cars. Examples include virtual assistants like me and AI in healthcare for medical imaging analysis.

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

A)2 answer

In supervised learning, the model is trained on labeled data, where it learns to map input data to the correct output. Unsupervised learning, on the other hand, works with unlabeled data to find patterns and relationships without explicit guidance on the output.

3.What is Python? Discuss its main features and advantag

A)Python is a high-level programming language known for its simplicity and readability. Its main features include a clear syntax, extensive standard library, and support for multiple programming paradigms like procedural, object-oriented, and functional programming. Python's advantages include its versatility, ease of learning, strong community support, and wide range of applications in web development, data science, artificial intelligence, and more.

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

A)

Python is widely favored in AI and ML due to its simplicity, readability, and vast libraries like TensorFlow and Scikit-learn that streamline development. Its flexibility in handling data, ease of prototyping, and strong community support make it a top choice for AI and ML projects.

5. Discuss the importance of indentation in Python code.

A)

Indentation in Python code is crucial as it defines the structure and scope of the code. Proper indentation ensures readability and helps Python interpret the code correctly, as it uses indentation to determine the beginning and end of code blocks like loops, functions, and conditional statements. Incorrect indentation can lead to syntax errors and affect the functionality of the code.

6. Define a variable in Python. Provide examples of valid variable names.

A)Indentation in Python is important for code structure, readability, and syntax requirements.

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

A)Keywords are reserved words in Python with predefined meanings. Identifiers are user-defined names for entities like variables or functions.

[8. List the basic data types available in Python.

A)In Python, some basic data types include:

- Integer: Represents whole numbers (e.g., 5, -10).
- Float: Represents decimal numbers (e.g., 3.14, -2.5).
- String: Represents a sequence of characters (e.g., "Hello", 'World').
- Boolean: Represents either `True` or `False`.
- List: Represents an ordered collection of items.
- Tuple: Represents an ordered, immutable collection of items.
- Dictionary: Represents a collection of key-value pairs.

[8. List the basic data types available in Python.

A)In Python, some basic data types include:

- Integer: Represents whole numbers (e.g., 5, -10).
- Float: Represents decimal numbers (e.g., 3.14, -2.5).
- String: Represents a sequence of characters (e.g., "Hello", 'World').
- Boolean: Represents either `True` or `False`.
- List: Represents an ordered collection of items.
- Tuple: Represents an ordered, immutable collection of items.
- Dictionary: Represents a collection of key-value pairs.

These are just a few examples of the basic data types available in Python.

9. Describe the syntax for an if statement in Python.

A)In Python, the syntax for an `if` statement looks like this:

```python
if condition:
    # code to be executed if the condition is true
```

The keyword `if` is followed by a condition, which is a statement that evaluates to either `True` or `False`. If the condition is `True`, the code block indented below the `if` statement is executed. If the condition is `False`, the code block is skipped.

10. Explain the purpose of the elif statement in P .

A)In Python, the `elif` statement is short for "else if." It's used to check for multiple conditions after

an initial `if` statement. If the first condition is not met, the program moves to the `elif` statement and checks its condition. If that condition is true, the corresponding code block is executed. It's like a backup plan if the first condition isn't satisfied.ython.