1a. DEFINITION: Artificial intelligence is the science of making machines that can think like humans. AI refers to computer systems capable of performing complex tasks that historically only a human could do, such as reasoning, making decision, or solving problems.

APPLICATIONS: chatbots, online shopping, healthcare, social media, face recognition, robotics, natural language processing.

2a. SUPERVISED LEARNING:

* supervised learning are trained using labelled data as input
* it uses less computational complexity
* this model takes direct feedback to check if it is predicting correct output or not
* this model predicts the output
* it needs supervision to train the model
* it can be categorized in classification and regression problems

UNSUPERVISED LEARNING:

* unsupervised learning are trained using unlabelled data as input
* it uses more computation complexity
* this type of model does not take any feedback
* this model finds the hidden patterns in data
* it does not needs any supervision to train the model
* it can be classified in clustering and associations problems

3a. python is a set of instructions that we give in the form of a programme to our computer to perform any specific task. It is a programming language having properties like it is interpreted, object-oriented and it is high-level too.

FEATURES:

* free and open source
* easy to code
* easy to read
* object-oriented language
* high-level language
* it a portable language
* interpreted language

ADVANTAGES:

* easy to learn and use
* free and open source
* cross-platform language
* strong community support
* integration and extensibility
* scalability and performance
* versatility and flexibility
* dynamically typed
* wide range of libraries and frameworks
* rapid development

4a. python is the major code language for AI and ML. It surpasses java in popularity and has many advantages, such as a great library ecosystem, good visualization options, A low entry barrier, community support, flexibility, readability, and platform independence.

5a. Indentation is a very important concept of python because without properly indenting the python code, you will be getting IndentationError and the code will not get complied. python indentation refers to adding white space before a statement to a particular block of code. In another word, all the statements with the same space to the right, belong to the same code block.

6a. Python variable is a containers that stores values. The variables acts an address for where the data is stored in memory. We do not need to declare variables before using them or declare their type. A variables is a created the moment we first assign the value to it. A python variable is a name given to a memory location.

EXAMPLE:

myvar = ”vec”

my\_var = “vec”

\_my\_var = “vec”

myVar = “vec”

MYVAR = “vec”

myvar2 = “vec”

print(myvar)

print(my\_var)

print(\_my\_var)

print(myVar)

print(MYVAR)

print(myvar2)

OUTPUT:

Vec

Vec

Vec

Vec

Vec

Vec

7a. KEYWORDS:

* keywords are predefined word that gets reserved for working program that have special meaning and cannot get used anywhere else.
* It Specify the type/kind of entity.
* It always starts with a lowercase letter
* A keyword should be in lower case.
* A keyword contains only alphabetical characters.
* They help to identify a specific property that exists within a computer language.
* No special symbol, punctuation is used.
* Examples of keywords are: int, char, if, while, do, class etc.

IDENTIFIER:

* Identifiers are the values used to define different programming items such as variables, integers, structures, unions and others and mostly have an alphabetic character.
* Identify the name of a particular entity.
* First character can be a uppercase, lowercase letter or underscore.
* An identifier can be in upper case or lower case.
* An identifier can consist of alphabetical characters, digits and underscore.
* They help to locate the name of the entity that gets defined along with a keyword.
* No punctuation or special symbols expect ‘underscore’ is used.
* Examples of identifiers are: test, count1, high\_speed, etc.

8a. The following are the standard or built-in data types in python:

* Numeric data type : it represent the data that has a numeric value that can be integer, a floating number, or even a complex number.

Integer – this value is represented by int class. It contains positive or negative whole numbers(without fractions or decimals).

Float – this value is represented by float class. It is a real number with a floating-point representation.

Complex number -- this complex numbers is represented by complex class. It is specified as (real part) + (imaginary part)j.

* Sequence data type : it is represented as ordered collection of similar or different python data types. Sequence allow storing of multiple values in an organised and efficient fashon.

String – strings is a collection of one or more characters put in a single quote, double quote, or triple quote.

List – list is an ordered collection of data.

Tuple – tuple is also an ordered collection of objects. The only difference blw a tuple and list is that tuples are immutable.

* Boolean data type : python data type with one of the two built-in values, True or False.
* Set data type : set is an unordered collection of data type that is iterable, mutable, and has no duplicate elements.
* Dictionary data type : it is an unordered collection of data values, used to store data values like a map, unlike other python data types that hold only a single value as an elements, a dictionary holds a key: value pair.

9a. In python, if statements are a starting point to implement a condition.

Syntax: if <condition>:

<expression>

Example: a = 33

b = 200

if b > a:

print(“b is greater than a”)

output: b is greater than a

10a. ‘Elif’ stands for ‘else if’ and is used in python programming to test multiple conditions. It is written following an if statement in python to check an alternative condition if the condition is false. The code block under the elif statement will be executed only if its condition is true.