1.What is the purpose of using control flow statements like if, else, and elif in Python?

ANS: When we want to implement conditions in our code like if x is 1 then this line should be executed and if x is not 1 then this condition is executed. The first condition is specified by 'if', all the other conditions except the first and last are specified by 'elif' or 'else if' and the code that should be executed if neither of the if or elif conditions are true, that code is specified by 'else'.

2.How does Python determine which block of code to execute in an if-else statement?

ANS:

Python checks the condition that is given in the certain statement is true then the indented code below the statement execute, if the statement is false then python moves on to check the next statement and so on.

3.Explain the difference between the if-elif-else and nested if-else structures.

ANS: If condition is used when we want to specify the first condition, elif is used for second condition till the second last and else is used for the last condition when neither of if or elif are true.

Nested if-else are used when we want to implement a condition inside a condition like if x is integer, this would be the upper condition and in nested if-else we would check if x is negative or positive.

4. How can you use logical operators (and, or, not) with if-else statements in Python?

ANS: Logical operators can be used in if-else for different purpose, we can use and when we want a code to execute when multiple conditions are true, and or if any one of the condition is true, in,on and similar logical operators are used when we want to check whether a variable is in a data structure or not.

5. Describe scenarios where nested if-else statements are preferred over if-elif-else structures.

ANS: Nested if-else concise the code, and make it easy to implement multiple conditions in just a few lines rather than using if-else again and again. For example, if we want to check whether x is in a list we specify the first condition and then we want to check that is x even or odd, then we implement another condition inside the first if.

6. How does Python handle multiple conditions in an if-elif-else ladder?

ANS: Python checks each condition one by one, if this is true then checks the conditions inside that if , if it is false then directly moves to elif or else

7. Why is it important to indent properly when using control flow statements in Python?

ANS: Indenting the code properly is necessary for python's syntax and to make python know to execute a certain code if a certain condition is true.