Python Core Concepts Questions

1. Open a file named 'sample.txt' in read mode and print its content.

2. Read a line from a file and remove leading/trailing whitespaces using `strip()`.

3. Take a string input and split it into a list of words using `split()`.

4. Write a function that checks if a given string consists only of digits using `isdigit()`.

5. Use the `time` module to measure the execution time of a function.

6. Implement a flag approach to search for a number in a list. If found, print 'Number exists', otherwise 'Not found'.

7. Use tuple unpacking to assign values from a tuple (10, 20, 30) to three different variables.

8. Print a string that includes escape sequences for a new line (`\n`), tab (`\t`), and a backslash (`\\`).

9. Use a raw string to print a file path like `C:\new_folder\test.txt` without escaping characters.

10. Implement a `match-case` statement that prints different messages for different integer inputs.

11. Write a function with a docstring and retrieve its documentation using `.__doc__`.

12. Use the `next()` function to retrieve the first three elements of an iterator.

13. Iterate over a list using `enumerate()` and print the index along with the corresponding element.

14. Use a loop with an `else` block to check if a number exists in a list. If it doesn't, print 'Not Found'.

15. Write a shorthand `if-else` statement to assign 'Even' or 'Odd' to a variable based on a given number.

16. Demonstrate the difference between a global and a local variable within a function.

17. Open a file in read mode and use `seek()`, `tell()`, and `truncate()` to manipulate its content.

18. Write a lambda function that squares a number and test it on 5.

19. Use `map()` to double the elements of a list.

20. Use `filter()` to extract only even numbers from a list.

21. Use `reduce()` to find the product of all numbers in a list.

22. Explain the difference between `is` and `==` using examples with integers and lists.