

Sample Exam Questions

1. Given a dictionary, remove all the items with a key length greater than 5.

```
example_dict =  
    {'apple': 3, 'banana': 5, 'cherry': 8, 'watermelon':  
12}
```

2. Write a Python function that takes two numbers as input and returns the quotient of their division. Handle the `ZeroDivisionError` exception if the second number is zero.
3. Given a text file 'sample.txt', write a Python program to count the number of lines in the file.
4. Write a Python program using list comprehension to generate a list of squares for numbers 1 to 10.
5. Write a Python function that takes a list of numbers as input and returns the sum of squares. Handle the `TypeError` exception if a non-numeric value is encountered in the list.
6. Create a Python class 'Matrix' with methods for matrix addition and multiplication. The class should be able to handle matrices of any size that are eligible for addition or multiplication.
7. Given a list of strings, find the three most common words and their frequencies.
8. Implement a function that finds the longest common character subsequence in a list of words.
9. Given two strings, write a function to check if one is a permutation of the other. (E.g., "listen" and "silent")
10. Given a list of integers, find the three numbers with the largest sum. Return the three values.
11. Create a class 'Author' with attributes 'name' and 'email'. Create a class 'Book' with attributes 'title' and 'author' (an instance of 'Author'). Implement a method in 'Book' to display the book details (i.e. title and author).
12. Create a class 'A' with a method 'display_a' printing a random string. Create a class 'B' with a method 'display_b' printing a random string. Create a class 'C' that inherits from both 'A' and 'B' and has its own method 'display_c' printing a random string. Initialize 'A' and call all three methods.

13. Design a class-based solution for a music library. Implement classes for albums, songs, and playlists. Include methods for adding and removing songs, displaying album details, and creating playlists.
14. Write an example of overriding a method in Python.
15. Write a Python function that takes a string and a character as input and returns the count of that character in the string.