1. How do you distinguish between shutil.copy() and shutil.copytree()?

Ans: The shutil module in Python provides functions for copying files and directories. The shutil.copy() function is used to copy a single file, while the shutil.copytree() function is used to copy an entire directory, including all of the files and subdirectories inside the directory.

```
import shutil

# Copy a single file using the shutil.copy() function.

shutil.copy('source/file.txt', 'destination/file.txt')

# Copy an entire directory, including all of the files and

# subdirectories inside the directory, using the

# shutil.copytree() function.

shutil.copytree('source/dir1', 'destination/dir1')
```

2. What function is used to rename files?

Ans: To rename a file in Python, we can use the os.rename() function from the os module. This function takes two arguments: the current name of the file, and the new name for the file. It renames the file from the current name to the new name, and it returns None.

```
import os

# Rename a file from 'oldname.txt' to 'newname.txt'.

os.rename('oldname.txt', 'newname.txt')
```

3. What is the difference between the delete functions in the send2trash and shutil modules?

Ans: The send2trash and shutil modules in Python both provide functions for deleting files and directories. The send2trash module provides a send2trash() function that moves a file or directory to the trash or recycle bin, while the shutil module provides a rmtree() function that permanently deletes a file or directory.

```
import send2trash

import shutil

# Move a file to the trash or recycle bin using the send2trash()

# function from the send2trash module.

send2trash.send2trash('myfile.txt')
```

```
# Permanently delete a directory, including all of the files

# and subdirectories inside the directory, using the rmtree()

# function from the shutil module.

shutil.rmtree('mydir')
```

4.ZipFile objects have a close() method just like File objects' close() method. What ZipFile method is equivalent to File objects' open() method?

Ans: The ZipFile class in the zipfile module in Python provides a way to work with ZIP archive files. This class provides methods for creating, reading, and writing to ZIP archives, as well as for managing the contents of the archive.

The ZipFile class has a close() method that is similar to the close() method of the File class in Python. This method is used to close a ZipFile object, and it should be called when you are finished working with the ZIP archive.

The equivalent of the open() method of the File class for the ZipFile class is the __init__() method. This method is used to create a new ZipFile object and open a ZIP archive for reading or writing. It takes a string argument specifying the path of the ZIP archive file, and it also takes an optional mode argument that specifies how the file should be opened.

```
import zipfile

# Create a new ZipFile object and open a ZIP archive for writing.

z = zipfile.ZipFile('myzip.zip', 'w')

# Add some files to the ZIP archive.

z.write('file1.txt')

z.write('file2.txt')

# Close the ZIP archive.

z.close()
```

5. Create a programme that searches a folder tree for files with a certain file extension (such as .pdf or .jpg). Copy these files from whatever location they are in to a new folder.

Ans:

```
import os

import shutil
```

```
def search_and_copy(src_dir, dest_dir, file_ext):
    # Search the src_dir folder tree for files with the specified file extension
    for root, dirs, files in os.walk(src_dir):
        for file in files:
            if file.endswith(file_ext):
                # Copy the file from the source location to the destination location
                src_path = os.path.join(root, file)
                dest_path = os.path.join(dest_dir, file)
                shutil.copy(src_path, dest_path)
# Example usage:
src_dir = 'C:/Users/Documents'
dest_dir = 'C:/Users/Downloads/CopiedFiles'
file_ext = '.pdf'
search_and_copy(src_dir, dest_dir, file_ext)
```