Python File Programming Examination

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Time: 1 Hour **Maximum Marks: 300**

Marking Scheme: +4 for each correct answer, -1 for each incorrect answer.

Instructions

1. This paper consists of 75 multiple-choice questions.
2. Each question has four options, out of which only one is correct.
3. You will be awarded 4 marks for each correct answer and -1 will be deducted for each incorrect answer.
4. Please read the questions carefully before answering.

Questions

1. What is the primary purpose of a file in programming?
   (a) To store data temporarily in memory.
   (b) To store data permanently on a storage device.
   (c) To execute code.
   (d) To display output to the user.
2. Which of the following is the correct way to open a file named "data.txt" in read mode?
   (a) ‘file = open("data.txt", "r")‘
   (b) ‘file = open("data.txt", "read")‘
   (c) ‘file = read("data.txt")‘
   (d) ‘file.open("data.txt", "r")‘
3. The ‘open()‘ function in Python returns a:
   (a) String
   (b) Integer
   (c) File object
   (d) Boolean
4. What is the purpose of the ‘close()‘ method for a file object?

(a) To save the file.

(b) To delete the file.

(c) To release the resources held by the file object.

(d) To rename the file.

5. Which of the following modes is used to open a file for both reading and writing?

   (a) ‘r‘

   (b) ‘w‘

   (c) ‘r+‘

   (d) ‘a‘

6. What does the ‘read()‘ method do when called on a file object without any arguments?

   (a) Reads a single line from the file.

   (b) Reads the entire contents of the file as a single string.

   (c) Reads a specified number of bytes from the file.

   (d) Returns an error.

7. To read a single line from a file, you would use the:

   (a) ‘read()‘ method

   (b) ‘readline()‘ method

   (c) ‘readlines()‘ method

(d) ‘read$_l$*ine*()‘*method*

8. What does the ‘readlines()‘ method return?

   (a) A single string with all lines.

   (b) A list of strings, where each string is a line from the file.

   (c) A tuple of strings.

   (d) An iterator object.

9. How would you read a text file line by line and display each word separated by a ” in Python?

   (a)
```
with open('file.txt', 'r') as f:
    for line in f:
        print('#'.join(line.split()))
```

   (b)
```
with open('file.txt', 'r') as f:
    for line in f:
        print(line.replace(' ', '#'))
```

   (c)
```
with open('file.txt', 'r') as f:
    data = f.read()
    print(data.replace(' ', '#'))
```

   (d) All of the above could work depending on the exact file content.

10. Which of the following code snippets correctly counts the number of vowels in a text file?

    (a)
```
count = 0
with open('file.txt', 'r') as f:
    data = f.read()
    for char in data:
        if char.lower() in 'aeiou':
            count += 1
print(count)
```

(b)
```
count = 0
with open('file.txt', 'r') as f:
    for line in f:
        for char in line:
            if char.lower() in 'aeiou':
                count += 1
print(count)
```

(c) Both (a) and (b) are correct.

(d) Neither (a) nor (b) are correct.

11. How can you remove all lines that contain the character 'a' from a file and write the result to another file?

(a)
```
with open('input.txt', 'r') as f_in, open('output.txt', 'w') as f_out:
    for line in f_in:
        if 'a' not in line:
            f_out.write(line)
```

(b)
```
with open('input.txt', 'r') as f_in, open('output.txt', 'w') as f_out:
    lines = f_in.readlines()
    for line in lines:
        if 'a' not in line:
            f_out.write(line)
```

(c)
```
with open('input.txt', 'r') as f_in:
    lines = [line for line in f_in if 'a' not in line]
with open('output.txt', 'w') as f_out:
    f_out.writelines(lines)
```

(d) All of the above are correct.

12. (CBSE Class 12) What is the significance of the 'with' statement when opening a file?

(a) It automatically opens the file.

(b) It automatically closes the file after the block of code is executed.

(c) It prevents any exceptions from occurring.

(d) It is a replacement for the 'try-finally' block for file operations.

13. To open a binary file for writing in Python, which mode would you use?

(a) 'w'

(b) 'wb'

(c) 'bw'

(d) 'w+b'

14. What is the role of the 'pickle' module in Python?

(a) To handle text files.

(b) For serializing and de-serializing Python object structures.

(c) To manage CSV files.

(d) To perform mathematical calculations.

15. Which method in the 'pickle' module is used to write a Python object to a binary file?

(a) 'dump()'

(b) 'load()'

(c) ‘write()‘

(d) ‘save()‘

16. To read a pickled object from a binary file, you use the ‘pickle.load()‘ method. What does it take as an argument?

    (a) The name of the file.

    (b) The file object.

    (c) The data to be loaded.

    (d) The size of the object.

17. How would you create a binary file with a name and roll number, and then search for a given roll number to display the name?

    (a)
    ```
    import pickle

    def search_roll(roll_no):
        with open('student.dat', 'rb') as f:
            try:
                while True:
                    data = pickle.load(f)
                    if data['roll'] == roll_no:
                        print(data['name'])
                        break
            except EOFError:
                print("Roll number not found.")
    ```

    (b)
    ```
    import pickle

    def search_roll(roll_no):
        with open('student.dat', 'r') as f:
            # ... same logic
    ```

    (c) The ‘pickle‘ module cannot be used for this purpose.

    (d) None of the above.

18. How do you update marks for a given roll number in a binary file?

    (a) By loading the entire file into memory, updating the specific record, and then writing the entire data back to the file.

    (b) By seeking to the position of the record and overwriting it.

    (c) Both (a) and (b) are possible approaches.

    (d) Binary files are immutable and cannot be updated.

19. (Fun Question) What will be the output of the following code?

    ```
    with open("fun.txt", "w") as f:
        f.write("Python is fun!")
    with open("fun.txt", "r") as f:
        print(f.read(6))
    ```

    (a) ‘Python‘

    (b) ‘Python is fun¡

    (c) ‘ is fun¡

    (d) ‘Python ‘

20. What module would you use to generate random numbers in Python?

    (a) ‘math‘
    (b) ‘random‘
    (c) ‘os‘
    (d) ‘sys‘

21. Which function from the ‘random‘ module can simulate a dice roll (generating a random number between 1 and 6)?

    (a) ‘random.random()‘
    (b) ‘random.randint(1, 6)‘
    (c) ‘random.randrange(1, 7)‘
    (d) Both (b) and (c) are correct.

22. How would you implement a stack using a list in Python?

    (a) Using ‘append()‘ to push and ‘pop()‘ to pop.
    (b) Using ‘insert(0, item)‘ to push and ‘pop(0)‘ to pop.
    (c) Using ‘extend()‘ to push and ‘remove()‘ to pop.
    (d) Stacks cannot be implemented using lists.

23. What does CSV stand for?

    (a) Comma-Separated Values
    (b) Comma-Separated Variables
    (c) Computer-Separated Values
    (d) Centrally-Separated Values

24. Which module in Python is used for working with CSV files?

    (a) ‘csv‘
    (b) ‘json‘
    (c) ‘os‘
    (d) ‘pandas‘ (though pandas is a powerful library, ‘csv‘ is the standard library module).

25. To read a CSV file in Python, you would typically use the:

    (a) ‘csv.reader()‘ object
    (b) ‘csv.writer()‘ object
    (c) ‘csv.read()‘ function
    (d) ‘csv.load()‘ function

26. How do you write data to a CSV file in Python?

    (a) Using a ‘csv.writer‘ object and its ‘writerow()‘ or ‘writerows()‘ methods.
    (b) By manually formatting strings with commas and writing them to a text file.
    (c) Using the ‘pickle‘ module.
    (d) Both (a) and (b) are possible, but (a) is the recommended approach.

27. (Fun Question) What will be printed?

```
my_list = [1, 2, 3]
with open('data.csv', 'w', newline='') as f:
    writer = csv.writer(f)
    writer.writerow(my_list)

# What will be the content of data.csv?
```

(a) ‘[1, 2, 3]‘

(b) ‘1,2,3‘

(c) ‘1 2 3‘

(d) ‘(1, 2, 3)‘

28. How do you search for a password for a given userid in a CSV file?

(a)
```
import csv

def find_password(userid):
    with open('users.csv', 'r') as f:
        reader = csv.reader(f)
        for row in reader:
            if row[0] == userid:
                return row[1]
    return "User not found"
```

(b)
```
import csv

def find_password(userid):
    with open('users.csv', 'r') as f:
        for line in f:
            if userid in line:
                return line.split(',')[1]
    return "User not found"
```

(c) Both (a) and (b) can work, but (a) is more robust for CSV parsing.

(d) This requires a database, not a CSV file.

29. The ‘seek()‘ method of a file object is used to:

(a) Move the file pointer to a specific position.

(b) Search for a specific string in the file.

(c) Close the file.

(d) Read data from the file.

30. What does ‘seek(0, 2)‘ do?

(a) Moves the file pointer to the beginning of the file.

(b) Moves the file pointer to the end of the file.

(c) Moves the file pointer 2 bytes from the beginning.

(d) Moves the file pointer 2 bytes from the end.

31. (Fun Question) What does the following Python code print?

```
print("Hello" * 3)
```

(a) ‘HelloHelloHello‘

(b) ‘Hello Hello Hello‘

(c) ‘Hello‘

(d) ‘Hello3‘

32. (CBSE Class 12) Which of the following is not a valid mode for opening a file?

(a) ‘r‘

(b) ‘w‘

(c) ‘a‘

(d) ‘rw‘

33. To write a list of lists to a CSV file, you should use:

(a) ‘writerow()‘

(b) ‘writerows()‘

(c) ‘writelist()‘

(d) ‘writeall()‘

34. (Fun Question) What is the output of ‘bool(”False”)‘?

(a) ‘True‘

(b) ‘False‘

(c) ‘Error‘

(d) ‘None‘

35. The ‘tell()‘ method of a file object returns:

(a) The current position of the file pointer.

(b) The total size of the file.

(c) The number of lines in the file.

(d) The last line read from the file.

36. What happens if you open a file in ’w’ mode that already exists?

(a) An error is raised.

(b) The new content is appended to the end of the file.

(c) The existing content is erased, and the file is treated as a new empty file.

(d) The user is prompted to overwrite the file.

37. Which file mode is used to create a new file, but fails if the file already exists?

(a) ‘w‘

(b) ‘a‘

(c) ‘x‘

(d) ‘c‘

38. (Fun Question) What does ‘f.write(’Hello’)‘ do in a text file opened in standard text mode?

(a) Writes ”Hello” and ”World” on the same line.

(b) Writes ”Hello” on the first line and ”World” on the second line.

(c) Writes ”Hello” literally into the file, including the backslash and ’n’.

(d) Throws an error because “ is not a valid character.

39. To count the number of lowercase letters in a file ‘story.txt‘, which code is correct?

(a)
```
count = 0
with open('story.txt') as f:
    data = f.read()
    for char in data:
        if char.islower():
            count += 1
```

(b)
```
with open('story.txt') as f:
    data = f.read()
    count = sum(1 for char in data if char.islower())
```

(c) Both (a) and (b) are correct.

(d) Neither is correct.

40. What is the purpose of 'f.writelines(list_of_lines)'?

(a) To write a single line from the list to the file.

(b) To write all strings in the 'list_of_lines' to the file, one after another, without adding line separators.

(c) To write all strings, automatically adding a newline after each.

(d) It is not a valid method in Python.

41. (CBSE Class 12) What is a key difference between 'r+' and 'w+' modes?

(a) 'r+' allows reading and writing; 'w+' only allows writing.

(b) 'r+' will raise an error if the file doesn't exist, while 'w+' will create it. Additionally, 'w+' truncates the file if it exists.

(c) 'w+' will raise an error if the file doesn't exist, while 'r+' will create it.

(d) There is no functional difference.

42. In a stack implemented with a Python list, which expression is analogous to the "peek" operation (viewing the top element without removing it)?

(a) 'stack[0]'

(b) 'stack[-1]'

(c) 'stack.peek()'

(d) 'stack.view_top()'

43. To simulate the sum of rolling two standard six-sided dice, which code is most accurate?

(a) 'random.randint(2, 12)'

(b) 'random.randint(1, 6) + random.randint(1, 6)'

(c) '2 * random.randint(1, 6)'

(d) 'random.randrange(2, 13)'

44. When reading a binary file with 'pickle', what exception is specifically raised when you try to 'load()' past the end of the file?

(a) 'IndexError'

(b) 'ValueError'

(c) 'EOFError' (End-Of-File Error)

(d) 'StopIteration'

45. (Fun Question) What is the content of 'file.txt' after this code runs?

```
with open("file.txt", "w") as f:
    f.write("123")
with open("file.txt", "a") as f:
    f.write("456")
```

(a) '456'

(b) '123'

(c) '123456'

(d) ‘123456‘

46. When working with the ‘csv‘ module, what is the default delimiter?

    (a) A tab (‘‘)
    (b) A semicolon (‘;‘)
    (c) A comma (‘,‘)
    (d) A space (‘ ‘)

47. To write a dictionary as a row in a CSV file, which object is most suitable?

    (a) ‘csv.writer‘
    (b) ‘csv.DictWriter‘
    (c) ‘csv.reader‘
    (d) ‘csv.DictReader‘

48. Consider updating a specific record in the middle of a binary file. What is the most common approach if records have variable sizes?

    (a) It’s impossible; binary files cannot be updated.
    (b) Use ‘seek()‘ to find the record, then ‘dump()‘ the new data.
    (c) Read all data into memory, modify the specific record, and rewrite the entire file.
    (d) Open the file in ‘a‘ mode and add the updated record at the end, marking the old one as invalid.

49. (CBSE Class 12) A text file contains the line: ‘"Python is fun."‘. The file pointer is at the beginning. You execute ‘f.read(6)‘. What will ‘f.tell()‘ return?

    (a) ‘5‘
    (b) ‘6‘
    (c) ‘7‘
    (d) ‘Python‘

50. What does ‘f.seek(10)‘ do, assuming ‘f‘ is a file object?

    (a) Moves the file pointer 10 bytes forward from the current position.
    (b) Moves the file pointer to the 10th byte position (offset 10) from the beginning of the file.
    (c) Moves the file pointer 10 bytes backward from the end of the file.
    (d) Reads the first 10 bytes of the file.

51. To check if a stack is empty (when implemented as a list ‘stk‘), which of the following is a valid method?

    (a) ‘if stk == []:‘
    (b) ‘if not stk:‘
    (c) ‘if len(stk) == 0:‘
    (d) All of the above are correct.

52. How do you correctly read a CSV file where columns are separated by a semicolon (‘;‘)?

    (a) ‘csv.reader(f, separator=’;’)‘
    (b) ‘csv.reader(f, delimiter=’;’)‘
    (c) ‘csv.reader(f, split=’;’)‘
    (d) You must manually split each line using ‘line.split(’;’)‘.

53. (Fun Question) What is the most likely outcome when you try to pickle a lambda function?

(a) It works without any issues.

(b) It pickles the function's name but not its logic.

(c) It raises a 'PicklingError' because lambda functions are not serializable in all contexts.

(d) It automatically converts the lambda to a regular function first.

54. When removing lines containing 'a' from 'file1.txt' and writing to 'file2.txt', why is it a bad idea to read from and write to the same file in a single pass?

(a) It is not supported by Python's file I/O.

(b) It can lead to data corruption or unexpected behavior as the read and write pointers interfere with each other.

(c) It is highly inefficient compared to using two separate files.

(d) It requires a special 'os' library function.

55. What is the role of the 'os' module in file handling?

(a) It provides core functions for opening and closing files.

(b) It provides functions that interact with the operating system, such as 'os.remove()' to delete a file or 'os.rename()' to rename it.

(c) It is the primary module for data serialization.

(d) It is used for generating random numbers to name files.

56. Which of the following is a valid method to count the number of consonants in a file handle 'f'?

(a) Count all alphabetic characters and subtract the count of vowels.

(b) Create a string of all consonants and check if each character from the file is in that string.

(c) Check if a character 'c' satisfies 'c.isalpha() and c.lower() not in 'aeiou''.

(d) All of the above are valid logic.

57. What is the key difference between text files and binary files from a programmer's perspective?

(a) In text files, Python performs encoding/decoding of characters. In binary files, it deals with raw bytes directly.

(b) Text files cannot store numbers, only strings.

(c) Binary files are always smaller than text files for the same content.

(d) Text files do not have an end-of-file marker.

58. You have a CSV file 'users.csv' with headers 'userid,password'. To read it as a list of dictionaries, you should use:

(a) 'csv.reader'

(b) 'csv.writer'

(c) 'csv.DictReader'

(d) 'csv.DictWriter'

59. (CBSE Class 12) Which code will write each element of list 'L = ["A", "B", "C"]' on a separate line in a file associated with file handle 'F'?

(a) 'F.writelines(L)'

(b) 'F.write(L)'

(c) 'L_with_newlines = [item + " for item in L]; F.writelines(L_with_newlines)'

(d) 'pickle.dump(L, F)'

60. (Fun Question) What is the result of this code snippet?

```
print(type(open("a.txt", "w")))
```

(a) ‘¡class ’file’¿‘

(b) ‘¡class ’_io.TextIOWrapper’¿‘

(c) ‘¡class ’FileObject’¿‘

(d) It will cause an error as the file is not closed.

61. What is the purpose of the ‘newline=”‘ argument in ‘open(’data.csv’, ’w’, newline=”)‘?

(a) It prevents the ‘csv‘ module from writing extra blank rows between data rows on certain operating systems.

(b) It specifies that the file should not contain any newlines at all.

(c) It tells the ‘csv‘ module to use a tab as the newline character.

(d) It has no practical effect in modern Python.

62. In a stack ‘s = [10, 20, 30]‘, where the right side is the top, what does ‘s.pop()‘ return?

(a) ‘10‘

(b) ‘20‘

(c) ‘30‘

(d) ‘[10, 20]‘

63. You have a file opened with ‘f = open(’data.txt’, ’r’)‘. Which is the most memory-efficient way to iterate over all lines?

(a) ‘for line in f:‘

(b) ‘for line in f.readlines():‘

(c) ‘lines = f.read().split(”)‘

(d) All are equally memory-efficient.

64. To create a binary file with roll number, name, and marks, which data structure is best to ‘pickle.dump‘ for each record to ensure data integrity?

(a) A list ‘[roll, name, marks]‘

(b) A dictionary ‘’roll’: roll, ’name’: name, ’marks’: marks‘

(c) A tuple ‘(roll, name, marks)‘

(d) Any of the above could be used, but a dictionary is often preferred for clarity.

65. The ’append’ mode (‘a‘) is most suitable for:

(a) Reading files from the end.

(b) Applications like logging, where new data is continuously added to the end of a file.

(c) Overwriting the entire content of a file.

(d) Creating a new file only if it doesn’t already exist.

66. (Fun Question) What does this code do?

```
import sys
original_stdout = sys.stdout
with open('output.txt', 'w') as f:
    sys.stdout = f
    print('Hello, file!')
sys.stdout = original_stdout
print('Hello, console!')
```

(a) Prints ’Hello, file!’ to the console.

(b) Prints ’Hello, console!’ to the file ‘output.txt‘.

(c) Writes 'Hello, file!' to 'output.txt' and then prints 'Hello, console!' to the console.

(d) Raises an error due to reassignment of 'sys.stdout'.

67. How would you correctly count the total number of words in a file 'data.txt'?

(a) 'len(open('data.txt').read())'

(b) 'len(open('data.txt').readlines())'

(c) 'len(open('data.txt').read().split())'

(d) 'sum(1 for line in open('data.txt'))'

68. (CBSE Class 12) Differentiate between 'read(n)' and 'readline(n)'.

(a) 'read(n)' reads 'n' characters. 'readline(n)' reads at most 'n' characters from a line, but stops at the end of the line.

(b) 'read(n)' reads 'n' lines. 'readline(n)' reads one line of 'n' characters.

(c) They are identical in function.

(d) 'read(n)' reads from the whole file, 'readline(n)' reads from the current line only.

69. In a stack, the LIFO principle stands for:

(a) Last-In, First-Out

(b) First-In, Last-Out

(c) Last-In, Last-Out

(d) First-In, First-Out

70. What is a significant potential issue with using 'f.read()' on a very large file?

(a) It may be unexpectedly slow.

(b) It can consume an excessive amount of RAM, potentially crashing the program.

(c) It will only read the first 1024 bytes by default.

(d) It will raise a 'FileSizeError'.

71. To use the 'csv' module in your Python script, you must first include the line:

(a) 'install csv'

(b) 'import csv'

(c) 'include csv'

(d) No action is needed as 'csv' is a built-in function like 'print'.

72. (Fun Question) Given an empty file 'a.txt', what is the output of this code?

```
with open('a.txt', 'w') as f:
    pass
with open('a.txt', 'r') as f:
    print(f.read() == '')
```

(a) 'True'

(b) 'False'

(c) 'None'

(d) An 'EOFError'

73. Which of these is NOT a file object method in Python?

(a) 'flush()'

(b) 'truncate()'

(c) ‘fileno()‘

(d) ‘delete()‘ (Note: ‘os.remove()‘ is used for this purpose)

74. If you open a file in ‘w+‘ mode and the file already contains data, what happens to that data?

(a) The data is preserved, and the file pointer is positioned at the start.

(b) The data is preserved, and the file pointer is positioned at the end.

(c) The data is erased because the file is truncated to zero length.

(d) A ‘FileExistsError‘ is raised.

75. (Fun Question) What will be the final content of ‘test.txt‘ after this code executes?

```
f = open('test.txt', 'w')
f.write('Line 1')
f.seek(0)
f.write('Line 2')
f.close()
```

(a) ‘Line 1‘

(b) ‘Line 2‘

(c) ‘Line 2ine 1‘

(d) ‘Line 1Line 2‘