

"file1.txt"

Hello World

Python is interesting

"file2.txt"

Hello?5?2

World?5?1

Python?6?1

Is?2?1

Interesting?11?4 (10)

- (b) Consider dictionary Dict1 that represents vehicle models and its number available in a company. For example, Dict1 is defined as follows :

```
Dict1 = {'BMW':5, 'Mercedes': 10, 'Volkswagen': 10, 'Jaguar': 4, 'Landrover': 15}
```

Write a Python function Model() that accepts Dict1 along with a vehicle model. It returns the number of vehicles available for that model. If the model does not exist in Dict1, then it should return a value of -1. (5)

(500)

[This question paper contains 12 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 3685 H

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Name of the Paper : Programming With Python

Name of the Course : B.Voc.

Semester : II

Duration : 3 Hours Maximum Marks : 90

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. The paper has **two** sections.
3. **Section A** is compulsory.
4. Attempt any **four** questions from **Section B**.

Section A

1. (i) Which of the following are valid identifiers? If they are invalid, then mention the cause of violation. (5)

My_str, For, 7variable, cer%var, crew van

P.T.O.

(ii) Evaluate the following expressions :- (6)

(a) $10 \neq 9$ and $29 \geq 29$ and 'hi' > 'hello'

(b) $10 + 6 * 2 ** 2 \neq 9 // 4 - 3$ and $29 \geq 29 / 9$

(c) $15 \& 22$

(iii) What will be the output on the execution of the following code segments? Justify your answers. (4)

T1 = (1, 2, 3, 4, 5, 6, 7, 8)

print(T1[1 :: 2])

print(T1[-1 : -5 : -2])

print(T1[: : -1])

print(T1[: 7 : 2])

(iv) Consider the following function: (3)

```
def nMultiple(a = 0, num = 1):
```

```
    return a * num
```

What will be the output produced when the following calls are made :

```
print(nMultiple(5))
```

```
print(nMultiple(5, 6))
```

else:

```
    print(percent)
```

finally:

```
    print('Function percentage completed')
```

Determine the output for the following function calls :

(i) percentage (150.0, 200.0)

(ii) percentage(150.0, 0.0)

(iii) percentage ('150.0', '200.0')

6. (a) Write a Python code snippet to read a text file, 'file1.txt', line by line. For each line read from 'file1.txt', split the text into words and count the number of characters and vowels in each word. Write each word along with its character count and vowel count separated by a question mark(?) in file 'file2.txt'; with each word and its corresponding character count and vowel count in separate lines. Display the contents of 'file2.txt' on the console.

For example, the contents of 'file1.txt' are as shown below. Python code snippet should create

- (c) Write a Python function triangle (n) that accepts a positive integer n (here $n \leq 9$) as an argument and produces the pattern given below as output. In the pattern, for example, when 4 is entered as the value of n, the output will be as follows :

```
1
22
333
4444
```

(2)

- (d) Examine the following function percentage : (6)

```
def percentage(marks, total):
    try:
        percent = (marks / total) * 100
    except ValueError:
        print('ValueError')
    except TypeError:
        print('TypeError')
    except ZeroDivisionError:
        print('ZeroDivisionError')
    except:
        print('Any other Error')
```

```
print(nMultiple(num = 7))
print(nMultiple(num = 6, a = 5))
print (5, num = 6))
print(nMultiple(a = 6,0))
```

- (v) Write a function that accepts a number and a string as arguments. It should return a list having n elements such that the i^{th} element of the list has the string repeated i times. For example, if the arguments are 3 and 'Hello' then the function should return ['Hello', 'HelloHello', 'HelloHelloHello']. (3)

- (vi) Write a function series_sum(n), which accepts an integer and calculates and returns the sum of the first n terms of the following series :

1 - 2 + 3 - 4 + 5 - 6 + ... (3)

- (vi) Write a function that takes two file names, file1 and file2 as input. The function should read the contents of the file file1 line by line and should write them to another file file 2 after adding a new line at the end of each line. (3)

- (viii) What will be the output produced on execution of the following code segments? Justify your answers. (3)

```

mar • txt = 'Hi there! Hello! Have a good day.'
txt = txt.split ('!')
print(txt)
print('!!!'.join(txt))

```

Section B

2. (a) Define a class Student that keeps track of the academic record of students in a school. (12)

The class should contain the following instance data members :

rollNo: Roll number of the student

name: Student name

classSection: class and section of the student

marksList: List of marks in five subjects

The class should support following methods:

__init__ for initializing the data members

setMarks to set marks for five subjects

computeTotal for returning the total of the marks

__str__ that display information about an employee

- (d) Write a function that accepts three integers as arguments and returns their greatest common divisor (GCD). (4)

5. (a) Give the output that will be reproduced on execution of following code segment : (4)

```

s1 = 'I am an instance of a string!!'
print(s1[-13:-21])
print(s1.title())
print(s1.find('of'))
print(s1.isalpha())

```

- (b) Give the output that will be produced on execution of the following code Segment : (3)

```

a = True
b = False
if not a or b:
    print(1)
elif not a or not b:
    print (2)
else:
    print(3)

```

- (i) `Str[1:] = 'ello!'`
- (ii) `min(Tuple)`
- (iii) `Set.add(['d', 'e'])`
- (iv) `Set[1] = 'x'`
- (v) `print(Str[20])`

4. (a) Write a Python function `smallerXY(X, Y)` that accepts two integers `X` and `Y` and returns the smaller of two. Write another function `smallerXYZ(X, Y, Z)` that uses the function `smallerXY` to find minimum of three numbers `X, Y, Z`. (4)

(b) Write a function that accepts two integers `x` and `y`, and returns a dictionary where the keys are the numbers between `x` and `y`, and the values are square of keys. Consider both the cases where `x >= y` or `x <= y`. (3)

(c) Write a program to create 'Dept.csv' file having the following data : (4)

Department Number	Department Name	Location
10	'Accounting'	'New York'
20	'Research'	'Dallas'
30	'Sales'	'Chicago'
40	'Operations'	'Boston'

Include assert statements in appropriate functions to ensure that the marks in the `marksList` are `>= 0` and `<= 100`.

Also write statements for the following :

- create an object `SI` of this class for Subodh of IX C having roll no. as 19 and marks as 92, 96, 83, 97 and 91.
- display the details of this student using `__str__` function

(b) Write Python statements for the following equations (3)

(i) $n(n - 1) / 2$

(ii) $\sqrt{a + b}$

(iii) $(a+b)^2 - 2ab$

3. (a) What will be the output produced on execution of the following code segments? Justify your answers. (10)

(i) `def changelist() :`

`L=[]`

`L1=[]`

```

L2=[]
for i in range(1, 10):
    L . append(i)
Print (L2)
for i in range(10, 1, -2):
    LI . append(i)
Print(L2)
for i in range(len(L1)):
    L2 . append(L1[i] + L[i])
    L2 . append(len(L) - len(L1))
print (L2)

```

Changelist()

```

(ii) txt = 'Hello! good morning! Have a good day!.'
txt = txt.split ('!')
print(txt)
print('**'.join(txt))
txt = txt.partition('*')
print(txt)
print(txt.find('good'))
print(s1.count ('o'))
print(txt.find('good'))

```

```

(iii) x = 1
print(True and (x > 4))
print(not (x > 0) and (x > 0))
print((x != 1) == (not x == 1))

```

```

(iv) list1 = ['cat', 'dog', 19, 20]
print(list1[-3:-9])
list1[2] = 200
del list1[2]
print(list1[2])
print(list1)

```

```

(v) p = 10
q = 20
p *= q // 3
q += p + q ** 2
print (p, q)

```

(b) Given the following variables : (5)

Str = "Hi there!"

Tuple = (23, '52', 67, 12)

Set = {'a', 'b', 'c'}

What are the errors in the following code segments? Justify your answers.