

(ii) `t = (1, 2, 3, 7, 9, 0, 5)`

`s1={1,2,3,4}`

`s2={1,2,3,4,5}`

`print (t[1 : 3])`

`print(t[-1])`

`print(t[: -1])`

`print(t[1 : -1]).`

`print(s[2])`

`print(s1<s2)`

[This question paper contains 12 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 1355

I

Unique Paper Code : 2342011101

Name of the Paper : Programming Using Python
(Ad. In 2022 & 2023)

Name of the Course : **B.Sc. (Hons.) Computer
Science**

Semester : I

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. This paper has **two** sections.
3. All questions in **Section A** are compulsory.
4. Attempt any **four** questions from **Section B**.
5. Parts of a question must be answered together.

SECTION A (30 Marks)
(Compulsory)

1. (i) Draw a flowchart to compute the roots of a quadratic equation. Also Comment on the nature of the roots. (4)

- (ii) Evaluate the following expressions involving arithmetic, relational, and logical operators.

1. $5 \% 10 + 10 < 50$ and $29 \geq 29$

2. $15 \& 22$

3. $7 ** 2 // 9 \% 3$

4. $(x < y)$ or $(\text{not } (z == y) \text{ and } (z < x))$,
given $x = 1, y = 1, z = 1$ (4)

- (iii) Write a function Factor(X,Y) to print the common factors of X and Y. (4)

- (iv) Consider a list (4)

$L1 = [1,4,3,2,6,3,7,8,10,3,3]$

Write a python statement using list comprehension to create a list L2 having only even numbers from list L1.

7. (a) Write a program to read a file 'MyFile1' and perform the following operations (9)

(i) print the total number of lines in the file

(ii) copy the contents of the file into another file 'MyFile2' such that all the lowercase characters of 'MyFile1' are changed to their uppercase.

(iii) Create another file 'MyFile3' by merging lines alternately from two files 'MyFile1' and 'MyFile2'

- (b) Give the output of the following program segment. If any of the statements has error then write "error" giving the reasons in support of your answer (6)

(i) $t1=(1,2,3)$

$t2=(4,5)$

$t3=t1+t2$

$t1=t1+t2$

$t2[1]=10$

Course – Course applied for

Percentage – Percentage obtained

Eligible – 'Yes'/'No'

The Class should support the following methods :-

(i) `_init_()` for initializing data members. By default percentage is 0.

(ii) `Check()` for determining eligibility, if percentage > 80 then Eligible='Yes' else 'No'

(iii) `Display()` to display the details of the eligible applicants.

(b) Describe the following ways of passing the arguments during the function call. Illustrate your answer with the help of an example. (6)

(i) positional arguments

(ii) keyword arguments

(iii) parameter with default values

(v) Illustrate the difference between the following with the help of an example (4)

1. `T1=(3)` and `T2=(3,)`

2. `append` and `extend` function on a list

(vi) Suppose that `statement2` causes an exception in the following try-except block : (4)

try:

`statement1`

`statement2`

`statement3`

except `Exception1`:

`# Handle exception 1`

except `Exception2`:

`# Handle exception 2`

`statement4`

Answer the following questions with reasons in support of your answer

1. If the exception is not caught, will `statement4` be executed?

2. If the exception is caught in the except block, will statement4 be executed

- (vii) Consider the following program segment: (4)

for x in "Python Programming":

if x=='t':

S1

else :

print (x, end=' ')

print("end loop")

What will be the output when S1 is replaced with each of the following statements:

(a) break

(b) continue

- (viii) Consider the given string (2)

str1="Python is good"

What will be the output of the following :

print(str1.split(' '))

- (v) Check whether the string s2 contains both alphabets and numbers or not.

- (vi) Check whether the last three characters of s2 are '123' or not.

- (b) Write a function CountNum(L1), where L1 is a list of numbers passed as parameter. The function should count the total number of negative numbers and positive numbers in the list and store the information in a dictionary. For example

Given list

L=[1,-2,3,4,-6]

then function should generate a dictionary

D={'pos' : 3, 'nmeg' : 2} (7)

6. (a) Write a class 'Admission' that stores information about the students applying for admission. The class should contain the following data members: (9)

Name – Name of the applicant

- (b) Write a program to read 10 numbers and store them in a list L1 and their cubes in another list L2 such that L2[i] is the cube of the number stored at L1[i]. Before storing the numbers, the program should check that if the number entered is less than 4, it should raise a user defined exception Sma llNumber. Whether an exception occurs or not, both the list should be printed at the end.

(7)

5. (a) Consider the given strings (8)

s1 = "Welcome" and s2 = "to world123".

Write the code for the following statements :

- (i) Two different statements to create a new string s3 that combines s1 with s2.
- (ii) Give two different statements to create a substring of s1 from index 1 to index 4
- (iii) Assign the index of the first occurrence of character e in s1 to a variable x.
- (iv) Assign the index of the last occurrence of string abc in s1 to a variable x.

SECTION B

2. (a) Give the output of the following : (3,3,3)

(i) str1="*"

x1=("My","work")

x2="My,work"

print(str.join(x1))

print (x2.partition(","))

(ii) s1={10:'one',2:'two',3:'three',

1:{100:'ten',20:'twenty'}}

print(type(s1))

s2=s1.copy()

s2[10] = 'ten'

s1[1] [100] = 'one'

print(s1)

print(s2)

(iii) `t = (1,2,3,7,9,0,5)`

`print(t[1: 3])`

`print (t[-1])`

`print(t[1 : -1])`

(b) Write a function `sumUnq (T1)` which takes a tuple `T1` as parameter and returns the sum of all the non duplicate elements of the tuple. The function should also print the total number of elements of the tuple not included while computing the above sum.

(6)

3. (a) Consider a list `L1` as follows : (8)

`L1=[10, 20, 50 [30, 40]]`

Give the python statements to create the following list :

(i) `L2` as the shallow copy of the list `L1`

(ii) `L3` as the deep copy of the list `L1`

Print the elements of the list `L1`, `L2` and `L3` after the following modifications

(i) `L1[2] = 60`

(ii) `L1[3][1] = 80`

(b) Consider the following a set `S1` containing the names of the persons : (7)

`S1={'Amar', 'Amy', 'Aryan', 'Ajay','Beena', 'Brij'}`

Write a program which uses the set `S1` and generates two sets `S2` and `S3` such that `S2` contains only the names starting with 'A' from `S1` and `S2` contains only the names starting with 'B'. Print all the three sets.

4. (a) Describe the following string functions with examples : (8)

(i) `rfind()`

(ii) `rstrip()`

(iii) `replace()`

(iv) `capitalise()`