

St. Mary's School, Dwarka
Holiday Homework
Class XI
Subject: Informatics Practices
Worksheet 1

1. Write following expressions in Python:

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a) $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

b) $A = \pi r^2$

2. Write the Python programs for the following: -

2*4=8

- a. to create the multiplication table (from 1 to 10) of a number.
- b. Which reads two integers representing a month and day and prints the season for that month and day.
- c. to find those numbers which are divisible by 7 and multiple of 5, between 1500 and 2700
(both included)
- d. Write a Python function that takes a number as a parameter and check the number is prime or not.

3. Write the statements to do the following:

1*6=6

- a. To check in a string that it is properly title cased
- b. To check in a string that all characters are in uppercase
- c. To merge elements in a sequence
- d. To get the length of the string
- e. How will you convert a string to all lowercase?
- f. To randomizes the items of a list in place

4. Find the output of the following programs:

1*4=4

- a.

```
a = True
b = False
c = False
if not a or b:
    print 1
elif not a or not b and c:
    print 2
elif not a or b or not b and a:
    print 3
else:
    print 4
```
- b. `str1 = '{2}, {1} and {0}'.format('a', 'b', 'c')`

```
str2 = '{0}{1}{0}'.format('abra', 'cad')
```

```
print(str1, str2)
```

output: c, b and a abracadabra

c.

```
list1 = ['physics', 'chemistry', 1997, 2000]
```

```
list2 = [1, 2, 3, 4, 5, 6, 7 ]
```

```
print "list1[0]: ", list1[0]      #statement 1
```

```
print "list1[0]: ", list1[-2]     #statement 2
```

```
print "list1[-2]: ", list1[1:]    #statement 3
```

```
print "list2[1:5]: ", list2[1:5]  #statement 4
```

d.

```
from math import *
```

```
a = 2.13
```

```
b = 3.7777
```

```
c = -3.12
```

```
print(int(a), floor(b), ceil(c), fabs(c))
```

5. Write about the anatomy of NumPy arrays: Axes, Rank, dtype, itemsize. 3
6. Write a Python program enter “N” numbers in a tuple Num and find the sum, maximum and minimum values in the tuple. 3
7. How are dictionaries different from lists? 3
8. What are NumPy arrays? How many forms of arrays are there? 3
9. Write an application to count the frequency of elements in a list. For e.g.. let us assume that a list called NList contains the following elements. 3

```
NList= [10,11,0,12,12,10,12,12,13,13,14,15,15]
```
10. What Are The Built-In Types Available In Python?

Worksheet 2

Subject : Informatics Practices

1. Write a Python program for the following.

2*5=10

- a. to calculate the length of a string.
- b. to get the Python version you are using.
- c. to display the current date and time.
- d. to get the volume of a sphere with radius 6.
- e. to test whether a passed letter is a vowel or not.

2. Write the output of the following.

1*3=3

- a.

```
L = list('123456')
L[0] = L[5] = 0
L[3] = L[-2]
print(L)
```
- b.

```
data = 50
try:
    data = data/10
except ZeroDivisionError:
    print('Cannot divide by 0 ', end = "")
finally:
    print('GeeksforGeeks ', end = "")
else:
    print('Division successful ', end = "")
```
- c.

```
var1 = 'Hello all!'
var2 = "Goodmorning"
print "var1[0]: ", var1[0]      # statement 1
print "var2[1:5]: ", var2[1:5]  # statement 2
```

3. Write the python program to calculate the total amount with tax of an item.

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4. Write the python program to calculate the grade of the students according to the following table :-

- a. score >= 90 : "A+"
- b. score >= 80 : "A"
- c. score >= 70 : "B+"
- d. score >= 60 : "B"
- e. score >= 50 : "C"
- f. score >= 40 : "F"

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5. Write a SQL statement to display all customers, who are either belongs to the city New York or had a grade above 100. 2

customer_id	cust_name	city	grade	salesman_id
3002	Nick Rimando	New York	100	5001
3005	Graham Zusi	California	200	5002
3007	Brad Davis	New York	200	5001
3009	Geoff Camero	Berlin	100	5003
3008	Julian Green	London	300	5002
3003	Jozy Altidor	Moscow	200	5007

6. Write a SQL statement to display either those orders which are not issued on date 2012-09-10 and issued by the salesman whose ID is 505 and below or those orders which purchase amount is 1000.00 and below. 2

ord_no	purch_amt	ord_date	customer_id	salesman_id
70001	150.5	2012-10-05	3005	5002
70009	270.65	2012-09-10	3001	5005
70007	948.5	2012-09-10	3005	5002
70005	2400.6	2012-07-27	3007	5001
70008	5760	2012-09-10	3002	5001
70010	1983.43	2012-10-10	3004	5006
70003	2480.4	2012-10-10	3009	5003
70013	3045.6	2012-04-25	3002	5001

7. Write the command to create a table called CUSTOMERS with the columns specified below 3

Field	Type	Null	Key	Default	Extra
ID	Int(11)	NO	PRI		
NAME	Varchar(20)	NO			
AGE	Int(11)	NO			
ADDRESS	Char(25)	YES		NULL	
SALARY	Decimal(18,2)	YES		NULL	

8. Consider the following string str= “Global Warming”

½ *8=4

Write the statements in Python to implement the following.

- a. To display the last four characters
- b. To display the substring starting from index 4 and ending at index 8
- c. To check whether the string has alphanumeric characters or not
- d. To trim the last four characters from the string.
- e. To trim the first four characters from the string
- f. To display the starting index for the substring ‘Wa’.
- g. To change the case of the given string.
- h. To replace all the occurrences of letter ‘a’ in the string with ‘*’

9 Write the differences and similarities between NumPy arrays and Python Lists. 3

10 Elaborate with the help of an example for each, three ways to create NumPy arrays 3

Worksheet 3
Subject: Informatics Practices

1. What is a built-in function that Python uses to iterate over a number sequence? 1
2. What is the index in Python? 1
3. What is slicing In Python? 1
4. What is %s in Python? 1

5. Find the output of the following programs 2*3=6

- a.

```
dictionary = {}  
dictionary[1] = 1  
dictionary['1'] = 2  
dictionary[1] += 1  
sum = 0  
for k in dictionary:  
    sum += dictionary[k]  
print (sum)
```
- b.

```
i = 1  
while True:  
    if i % 3 == 0:  
        break  
    print(i)  
    i += 1
```

```

c. tuple = { }
   tuple[(1,2,4)] = 8
   tuple[(4,2,1)] = 10
   tuple[(1,2)] = 12
   _sum = 0
   for k in tuple:
       _sum += tuple[k]
   print(len(tuple) + _sum)

```

6. Mention the errors in the following SQL Query:

1*2=2

a. SELECT subject_code, AVG (marks)

FROM students

WHERE AVG(marks) > 75

GROUP BY subject_code;

b. SELECT subject_code, count(name)

FROM students;

7. Write a Python program to match key values in two dictionaries.

2

8. What are the built-in types available in python?

2

9. Write the SQL statements to enter the following records in table Customers

2

ID	NAME	AGE	ADDRESS	SALARY
1	Ramesh	32	AHMEDABAD	2000.00
2	Kumar	25	DELHI	1500.00
3	Kaushik	23	KOTA	2000.00
4	Chaitali	25	MUMBAI	6500.00

10. Write the SQL statements to fetch the following available in CUSTOMERS table:-

2*3=6

a. All the records

b. the ID, Name and Salary fields of the customers

c. where the SALARY starts with 200.