Summer Holiday Homework
Class – XII
Subject – Informatics Practices

Section-A

1. What is the difference between a keyword and an identifier?
2. What are literals in Python? How many types of literals are allowed in Python?
3. How many types of strings are supported in Python ?
4. What is None literal in Python?
5. What are data types? What are V's built-in core data types?
6. Why is Boolean considered a subtype of integers?
7. What is the role of comments and indentation in a program?
8. What are operators? What is their function? Give examples of some unary and binary operators.
9. What are immutable and mutable types? List immutable and mutable types of python.
10. What is the difference between implicit type conversion and explicit type conversion?
11. What is entry controlled loop? Which loop is entry controlled loop in Python?
12. Predict the outputs of the following programs :

A.
```
count=0
while count  < 10:
    print('hello')
    count += 1
```

B.
```
keepgoing = True
x = 100
    print(x)
    x = x – 10
    if x <  50 :
            keepgoing = False
```

C.
```
x='apple,pear,peach,grapefruit'
y = x.split(',')
for z in y :
    if z < 'k' :
            print(str.lower(z))
    else :
            print(str.upper(z))
```

D.
```
for name in ['Jayes', 'Ramya', 'Taruna', 'Suraj']:
    print(name)
    if name[0] == 'T' :
            break
    else:
            print('Finished!')
  print('Got it!')
```

13. How many times will the following for loop execute and what's the output?

```
    for i in range(-1,7,-2):
            for j in range(3):
    print(1,i,j)
```

14. What is a string slice ? How is it useful?

15. How are lists different from strings when both are sequences ?
16. How are tuples different from lists when both are sequences ?
17. How can you say that a tuple is an ordered list of objects?
18. How are dictionaries different from lists?
19. When are dictionaries more useful than lists?
20. What are the two ways to remove something from a list? How are they different.
21. Predict the output of the following program :

```
numbers = [9,18,27,36]
for num in numbers:
        for n in range(1,num%8):
        print(n,'#', end=" ")
print()
```

Section – B

Notes – Ch-1 & 2

Section – C

22. Define the following terms –
    A. ndarrays
    B. array slice
    C. array subset
23. Write code to create a 1-D ndarray of size 10 with all elements as zero, but th 5^{th} element is 10.
24. Create an ndarray with values ranging from 10 to 49 each spaced with a difference of 3.
25. Create a 8 x 8 ndarray and fill it with a checkerboard pattern i.e., 0 and 1 at alternative positions.
26. What are contiguous and non-contiguous subsets?
27. Which functions allow you to extract only rows or columns from an ndarray?
28. What is a quartile ? How is it related to quantile? How do you generate it in the in pandas?
29. What is pivoting ? Which functions of Pandas support pivoting?
30. What is the difference between pivot() and pivot_table() functions?
31. How useful is sorting and grouping?
32. What is the difference between reindex() and rename() functions?

33. Prepare Notes of following Chapters
    - Chapter – 1 Working with NumPy
    - Chapter – 2 Python Pandas
    - Chapter – 7 MySQL Revision Tour
    - Chapter – 8 More on SQL
    - Chapter – 11 Society, Law and Ethics
34. Do all Solved and unsolved Practical based question given in the book ‘Sumita Arora’ Informatics Practices Class XII