B.Sc(H) Computer Science II year

Programming in Python

Final Practical Examination 2021

Duration: 2 hours   **Max.Marks: 25**

All questions are compulsory.

1) Write Python programs using functions (with appropriate documentation) to print the following patterns: **(4 + 4)**

```
1
2 1
3 2 1
4 3 2 1
5 4 3 2 1
```
a)

```
10
10 8
10 8 6
10 8 6 4
10 8 6 4 2
```
b)

2) Given a string, write a program to reverse only the alternate words in the string.   **(3)**

Sample:
Input: This is Python Final Practical Examination
Output: sihT is nohtyP Final lacitcarP Examination

3) What problem arises in running the following program? How do you fix it?   **(2)**

```python
class A:
    def __init__(self, i):
        self.i = i

def main():
    a = A()
    print(a.i)

main() # Call the main function
```

4) Write a Python program to sort the elements at odd positions in ascending order and the elements at even positions in descending order. **(4)**

```
Input : [7, 10, 11, 3, 6, 9, 2, 13, 0]
Output : [11, 3, 7, 9, 6, 10, 2, 13, 0]
```

5) Write a program that plots graph corresponding to the following equation by taking suitable list as an input from the user: **(3)**

```
f(x) = 3x² + 7x + 2
```

6) Will your program have a runtime error if you invoke read() or readline() at the end of the file? Justify. **(1.5)**

7) Given a dictionary whose keys are strings and values are dictionaries, write a program to display all the values corresponding to a particular key taken from the user. **(3.5)**

```
Input :
input_dict = {'first' : {"a" : 7, "b" : 9, "c" : 12}, 'second' : {"a"
: 15, "b" : 19, "c" : 20}, 'third' :{"a" : 5, "b" : 10, "c" : 2}}
key = "b"
Output : [9, 19, 10]
```