**Python Theory Final Exam**

1. You have the data given below. You need to write a python program to print as sample output from the data. **10**

data={

'a':[{

'aa':{'aax':5,'aay':6,'aaz':7},

'ab':{'abx':8,'aby':9,'abz':10}

},

{

'aaa':{'aaax':11,'aaay':12,'aaaz':13},

'aab':{'aabx':14,'aaby':15,'aabz':16}

}],

'b':[{

'ba':{'bax':17,'bay':18,'baz':19},

'bb':{'bbx':20,'bby':21,'bbz':22}

},

{

'bba':{'bbax':23,'bbay':24,'bbaz':25},

'bbb':{'bbbx':26,'bbby':27,'bbbz':28}

}],

'c':[{

'ca':{'cax':29,'cay':30,'caz':31},

'cb':{'cbx':32,'cby':33,'cbz':34}

},

{

'cca':{'ccax':35,'ccay':36,'ccaz':37},

'ccb':{'ccbx':38,'ccby':39,'ccbz':40}

}]

}

**Output:**

Key:aax Value: 5

Key:aay Value: 6

Key:aaz Value: 7

Key:abx Value: 8

Key:aby Value: 9

Key:abz Value: 10

Key:aaax Value: 11

Key:aaay Value: 12

Key:aaaz Value: 13

Key:aabx Value: 14

Key:aaby Value: 15

Key:aabz Value: 16

Key:bax Value: 17

Key:bay Value: 18

Key:baz Value: 19

Key:bbx Value: 20

Key:bby Value: 21

Key:bbz Value: 22

Key:bbax Value: 23

Key:bbay Value: 24

Key:bbaz Value: 25

Key:bbbx Value: 26

Key:bbby Value: 27

Key:bbbz Value: 28

Key:cax Value: 29

Key:cay Value: 30

Key:caz Value: 31

Key:cbx Value: 32

Key:cby Value: 33

Key:cbz Value: 34

Key:ccax Value: 35

Key:ccay Value: 36

Key:ccaz Value: 37

Key:ccbx Value: 38

Key:ccby Value: 39

Key:ccbz Value: 40

1. Write a python program to make the data given below using list and dictionary comprehension and print it. **10**

data={1:[2,3,4,5],2:[1,3,4,5],3:[1,2,4,5],4:[1,2,3,5],5:[1,2,3,4]}

1. Write a python program to describe the types of scope in python. **10**
2. Draw an UML diagram for given classes. Here Student is the owner of Bag. **25**

class Person:

def \_\_init\_\_(self,name,height,weight,national\_id) -> None:

self.name=name

self.\_height=height

self.\_weight=weight

self.\_\_national\_id=national\_id

def \_get\_height(self):

return self.\_height

def \_get\_weight(self):

return self.\_weight

def \_\_get\_national\_id(self):

return self.\_\_national\_id

class Student(Person):

def \_\_init\_\_(self, name, height, weight, national\_id,roll,section,marks) -> None:

super().\_\_init\_\_(name, height, weight, national\_id)

self.roll=roll

self.section=section

self.\_\_marks=marks

def \_get\_marks(self):

return self.\_\_marks

class Bag:

def \_\_init\_\_(self,color,company) -> None:

self.color=color

self.company=company

@staticmethod

def \_\_buy\_bag():

pass

1. You need to find bugs from the python program below and give a correct python code to show as output given below. You can’t add extra lines, you just need to modify the given code so that you can get the expected output. **5**

data=[{'a':5,'b':10},{'x':15,'y':20}]

for val in range(data):

for key,val2 in val:

print(f"Key:{key} Value:{data[key]}")

**Output:**

Key:a Value:5

Key:b Value:10

Key:x Value:15

Key:y Value:20

1. You need to write a python program to take an integer input from the user and print a pattern given below. **10**

When n=5,

12345

21345

23145

23415

23451

When n=7,

1234567

2134567

2314567

2341567

2345167

2345617

2345671

1. You need to slice the list with values which are divided by 3. The list is given below. **5**

lst = [1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20]

**Output:**

[3, 6, 9, 12, 15, 18]

1. You need to write a python lambda function to tell whether a number is even or not. If it is even, return “Yes” otherwise “No”. **5**

print(even\_odd(5))

Output:

No

1. Run the below functions in 4 threads. **10**

def f1():

for i in range(5):

print(f"f1 - {i}")

def f2():

for i in range(5):

print(f"f2 - {i}")

def f3():

for i in range(5):

print(f"f3 - {i}")

def f4():

for i in range(5):

print(f"f4 - {i}")

1. Explain with examples - Single Inheritance, Multiple Inheritance and Multilevel inheritance **10**