Printed Page:- Subject Code:- AMICSE0202

Roll. No:

NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA

(An Autonomous Institute Affiliated to AKTU, Lucknow)

M.Tech (Integrated)

SEM: II - THEORY EXAMINATION (2021 - 2022)

Subject: Problem Solving using Advanced Python

Time: 3 Hours Max. Marks: 100

General Instructions:

1. The question paper comprises three sections, A, B, and C. You are expected to answer them as directed.
2. Section A - Question No- 1 is 1 marker & Question No- 2 carries 2 mark each.
3. Section B - Question No-3 is based on external choice carrying 6 marks each.
4. Section C - Questions No. 4-8 are within unit choice questions carrying 10 marks each.
5. No sheet should be left blank. Any written material after a blank sheet will not be evaluated/checked.

SECTION A 20

1. Attempt all parts:-

1-a. Which of the following statement/s is False? (CO1) 1

(a) Object is the instance of a class

(b) Instance variable belongs to class

(c) Class variable belong to class

(d) All are true

1-b. To access the document string of a class, class attribute used is: (CO1) 1

(a) __doc__

(b) __name__

(c) __dict__

(d) __main__

1-c. What type of inheritance is illustrated in the following Python code? (CO2) 1

```
classA():
    pass
class B(A):
    pass
class C(B):
```

```
    pass
```

(a) Multi-level inheritance

(b) Multiple inheritance

(c) Hierarchical inheritance

(d) Single-level inheritance

1-d. What will be the output of the following Python code? (CO2) 1

```
class A:
    def one(self):
        return self.two()
    def two(self):
        return'A'
class B(A):
    def two(self):
        return'B'
obj2=B()
print(obj2.two())
```

(a) A

(b) An exception is thrown

(c) A B

(d) B

1-e. What will be the output of the following Python code? (CO3) 1

```
ls=[-2, 4]
m=map(lambda x:x*2, ls)
print(m)
```

(a) [-4, 16]

(b) Address of m

(c) Error

(d) [-4, 8]

1-f. What is the output of the code shown below? (CO3) 1

```
g = (i for i in range(5))
type(g)
```

(a) class <'loop'>

(b) class <'iteration'>

(c) class <'range'>

(d) class <'generator'>

1-g. To delete any widget from the screen which function we use ? (CO4) 1

(a) stop()

(b) delete()

(c) destroy()

(d) break()

1-h. Which of the following is clickable in GUI programming ? (CO4) 1

(a) Button

(b) Checkbutton

(c) Lable

(d) 1 and 2

1-i. Correct syntax of the reshape() function in Numpy array python is_____? (CO5) 1

(a) array.reshape(shape)

(b) reshape(shape,array)

(c) reshape(array,shape)

(d) reshape(shape)

1-j. Which of the following is/are ways to create data frames? (CO5) 1

(a) create by using list of dictionary

(b) create by using dictionary with list

(c) create by using series

(d) All of the mentioned

2. Attempt all parts:-

2.a. Discuss the use of isinstance() function with example. (CO1) 2

2.b. What is the use of __init__ () method in Python? (CO2) 2

2.c. Find all of the numbers from 1–1000 that are divisible by 8 using list comprehension. (CO3) 2

2.d. How to set the min and max height or width of a Frame in Tkinter? (CO4) 2

2.e. What is meaning of axis=0 and axis=1? (CO5) 2

SECTION B 30

3. Answer any five of the following:-

3-a.	What are the object oriented programming concept ? Explain (CO1)	6
3-b.	Write short note on dunder methods . (CO1)	6
3-c.	What is instance method? Give syntax of instance method with and without parameters. (CO2)	6
3-d.	What is function polymorphism in python? Explain it with example. (CO2)	6
3.e.	What is iterator ?Also write a program that generate an iterator to print odd numbers from 1-20. (CO3)	6
3.f.	Write a Python GUI program to create a button Remove and a label Hello using tkinter module. Remove button should delete the label on click. (CO4)	6
3.g.	Create a dictionary with keys: Name, Department, City. Convert this dictionary into DataFrame. Rename column City as District ? (CO5)	6

SECTION C 50

4. Answer any one of the following:-

4-a.	Explain __lt__() , __eq__(),__ne__(),__ge__() and __gt__() by implementing a class. (CO1)	10
4-b.	Create a Python class named Rectangle constructed by a length and width. Also. Define a method called area which will compute the area of a rectangle. (CO1)	10

5. Answer any one of the following:-

5-a.	What is Inheritance? How code reusability is achieved using inheritance? Explain with the help of a program. (CO2)	10
5-b.	What is use of abstract class? Explain rules of abstract class. (CO2)	10

6. Answer any one of the following:-

6-a.	What do decorators do in Python? Where are Python decorators used? How do you decorate a class in Python? (CO3)	10
6-b.	Describe the role of generators with its advantages. Write a program to illustrate the use of generator by creating a generator that reverses a string. (CO3)	10

7. Answer any one of the following:-

7-a.	Write a program to display a menu on the menu bar. Write a program to display a pop-up dialog box. (CO4)	10
7-b.	Write a Python GUI program to create a Text widget using tkinter module. Insert a string at the beginning then insert a string into the current text. Delete the first and last character of the text. (CO4)	10

8. Answer any one of the following:-

8-a.	Explain any five sub-modules of scipy. (CO5)	10
8-b.	Why should one use NumPy arrays instead of nested Python lists? (CO5)	10