Printed Page:-04 **Subject Code:- ACSE0202 /ACSEH0202**

Roll. No:

NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA

(An Autonomous Institute Affiliated to AKTU, Lucknow)

B.Tech

SEM: II - THEORY EXAMINATION - (2024 - 2025)

Subject: Problem Solving using Advanced Python

Time: 3 Hours **Max. Marks: 100**

General Instructions:

IMP: *Verify that you have received the question paper with the correct course, code, branch etc.*

1. *This Question paper comprises of* ***three Sections -A, B, & C.*** *It consists of Multiple Choice Questions (MCQ's) & Subjective type questions.*

2. *Maximum marks for each question are indicated on right -hand side of each question.*

3. *Illustrate your answers with neat sketches wherever necessary.*

4. *Assume suitable data if necessary.*

5. *Preferably, write the answers in sequential order.*

6. *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. Data Hiding is related to the: (CO1,K1) 1

(a) Encapsulation
(b) Inheritance
(c) Polymorphishm
(d) Composition

1-b. Which of the following statement/s is False for __init__() method? (CO1,K1) 1

(a) It is a constructor.
(b) It is called automatically when object of a class created.
(c) More than one __init__() method can be placed inside a class.
(d) __init__() method return None

1-c. Which of the following is not a type of inheritance? (CO2,K1) 1

(a) Double-level
(b) Multi-level
(c) Single-level
(d) Multiple

1-d. What type of inheritance is illustrated in the following Python code? (CO2,K2) 1

```
classA():
        pass
```

.

```
classB():
        pass
class C(A,B):
        pass
```

(a) Multi-level inheritance
(b) Multiple inheritance
(c) Hierarchical inheritance
(d) Single-level inheritance

1-e. What will be the output of the following Python code? (CO3,K2) 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. Iterators must have _____. (CO3,K1) 1

(a) __iter__()
(b) __next__()
(c) __next__()
__iter__()
(d) None

1-g. Config() in tkinter is used for_____? (CO4,K1) 1

(a) destroy the widget
(b) place the widget
(c) change property of the widget
(d) configure the widget

1-h. Correct way to draw a line in canvas tkinter ? (CO4,K1) 1

(a) line()
(b) canvas.create_line()
(c) create_line(canvas)
(d) None of the above

1-i. Correct syntax of the reshape() function in Numpy array python is_____? (CO5,K1) 1

(a) array.reshape(shape)
(b) reshape(shape,array)
(c) reshape(array,shape)
(d) reshape(shape)

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1-j. Numpy in the Python provides the_____. (CO5,K1) 1

(a) Function
(b) Lambda function
(c) Type casting
(d) Array

2. Attempt all parts:-

2.a. Discuss magic methods used in python. (CO1,K1) 2

2.b. What is protected member? (CO2,K1) 2

2.c. What do you understand by Python Generators? (CO3,K1) 2

2.d. How to Update the label of the tkinter menu bar item? (CO4,K2) 2

2.e. Give syntax to create a 3-D array using numpy. (CO5,K2) 2

SECTION-B 30

3. Answer any five of the following:-

3-a. Write a program that has a class Circle, use a class variable to define the value of constant PI, use this class variable to calculate area and circumference of a circle with specified radius (CO1,K2) 6

3-b. Elaborate with a help of an example the difference between Data Abstraction and Data Encapsulation. (CO1,K2) 6

3-c. What is method overriding? Explain it with an example. (CO2,K1) 6

3-d. What is diamond problem, how python solve diamond problem explain with example. (CO2,K1) 6

3.e. Why and when do you use generators in Python? (CO3,K1) 6

3.f. Write a program to draw colored shapes (line, rectangle, oval) on canvas. (CO4,K2) 6

3.g. How will you create a series from dict in Pandas? (CO5,K2) 6

SECTION-C 50

4. Answer any one of the following:-

4-a. Explain object oriented programming concept in python with proper example. (CO1,K1) 10

4-b. Explain any five magic methods in python with suitable example. (CO1,K1) 10

5. Answer any one of the following:-

5-a. Explain 5 most useful introspection functions in python. (CO2,K1) 10

5-b. Write a program to create class Employee. Display the personal information and salary details of 5 employees using single inheritance. (CO2,K2) 10

6. Answer any one of the following:-

6-a. Discuss the implementation of list comprehension and map() function using an example. (CO3,K1) 10

6-b. What is lambda function. Explain how lambda functions used in filter() with an 10

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example. (CO3,K1)

7. Answer any <u>one</u> of the following:-

7-a.	Explain the feature of GUI application over Command line application. Moving from the command line to a graphical interface is good or bad. Explain it. (CO4,K1)	10
7-b.	Create a simple calculator with the help of GUI programming. (CO4,K3)	10

8. Answer any <u>one</u> of the following:-

8-a.	What Are the Key Features Of pandas Library? (CO5,K1)	10
8-b.	Why should one use NumPy arrays instead of nested Python lists? (CO5,K1)	10

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