Graphic Era HILL UNIVERSITY
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University under section 2(f) of UGC Act, 1956

End Term (Odd) Semester Examination NOV 2025

Roll no.....

Name of the Program and semester: BCA AI &DS / CS&CL
Name of the Course: Fundamentals of Python Programming
Course Code: TBD-102/TBL-102

Time: 3-hour Maximum Marks: 100

Note:

(i) All the questions are compulsory.
(ii) Answer any two sub questions from a, b and c in each main question.
(iii) Total marks for each question are 20 (twenty).
(iv) Each sub-question carries 10 marks.

Q1. (2X10=20 Marks)

a. Differentiate between for and while loops in Python. Explain the role of break, continue, and pass statements with examples. (CO 1)
b. What is Thread Synchronization? Explain the Producer-Consumer problem and how synchronization prevents race conditions. (CO 5)
c. What is the purpose of exception handling in Python? Discuss the syntax of try, except, and finally blocks with examples. (CO 3)

Q2. (2X10=20 Marks)

a. Write a program in python:
   i. To count the frequency of each vowel in string.
   ii. Check whether the given number is even or odd. (CO 2)
b. Explain the importance of labels, buttons, and entry fields in GUI design with examples. (CO 4)
c. Define recursion. Write a program to print Fibonacci series up to N by using recursion function. (CO 3)

Q3. (2X10=20 Marks)

a. Create a base class Person and a subclass Teacher that adds subject and salary. Display all details using a method. (CO 3)
b. Explain the built-in data types in Python. Support your answer with relevant examples. (CO 1)
c. Write a program to perform the following operations on list:
   i. To exchange the first and last element of the list.
   ii. To removes duplicates from the list. (CO 2)

Q4. (2X10=20 Marks)

a. Write a Python program to check whether a number is prime or not and take input at run time . (CO 1)
b. Explain the concept of event-driven programming in GUI applications. How does the Tkinter module support event handling? (CO 4)
c. Make a GUI with an Entry field and a Button.
   When the user types their name in the entry and clicks the button,
   display the message "Hello, <name>". (CO 4)

Q5. (2X10=20 Marks)

a. Define Thread and Process. Explain the need for multithreading in applications, with the

concept of context switching. (CO 5)

b. Define the properties of a string in Python. Demonstrate any five predefined string functions with examples. (CO 2)

c. Write a program:
   1. Calculate the factorial of a given number using while loop.
   2. Print all the prime number from the given list. (CO 1)

Note For the question paper setters:

- Question paper should cover all the COs of the course.
- Please specify COs against each question.