Graphic Era
HILL UNIVERSITY
Established by an Act of the State Legislature of Uttarakhand (Adhiniyam Sanshya 12 of 2011)
University under section 2(f) of UGC Act, 1956

## Term Evaluation (Odd) Semester Examination September 2025

Roll no. [redacted]

Name of the Course: B.Tech
Semester: 3rd
Name of the Paper: Python Programming
Paper Code: TCS 346
Time: 1.5 hour

Maximum Marks: 50

Note:

(i) Answer all the questions by choosing any one of the sub-questions
(ii) Each question carries 10 marks.

Q1. (10 Marks)

a. Ravi is new to Python and often confuses syntax errors with semantic errors. Define and differentiate these two errors with suitable Python examples to help Ravi. CO1

OR

b. Karan's teacher asked him to calculate factorial using a recursive function. Develop a recursive solution and justify the importance of the base case in recursion. CO1 CO2

Q2. (10Marks)

a. *While learning Python, many beginners get confused about lists. Define a Python list and illustrate with examples how to create, index, and slice it. Explain with a program how to use at least 3 list methods (like append(), remove(), sort()) to manage the collection.* CO3

OR

b. A file must be created to store the names of students. Write a Python program to store 5 names in a text file and then read the file content to display them. CO1 CO3

Q3. (10 Marks)

a. A log file entry looks like this: "ERROR: Disk full at 10:30". Write a regex program to extract only the time from such log entries. CO3

OR

b. A tuple of roll numbers (101, 102, 103, 104) is given. Demonstrate through code that tuples cannot be modified. Analyze why tuples are used instead of lists in storing fixed data like roll numbers. CO2 CO3

Graphic Era
HILL UNIVERSITY
Established by an Act of the State Legislature of Uttarakhand (Adhiniyam Sankhya 12 of 2011)
University under section 2(f) of UGC Act, 1956

## Term Evaluation (Odd) Semester Examination September 2025

Q4. (10 Marks)

a. A Sensor is a device which collects readings or data in form a number. Now the data is stored in a list. Develop a program and create function which performs operations :

i. computing average,
ii. finding maximum value,
iii. counting how many readings exceed a threshold.
iv. counting how many readings exceed a threshold. Example input: [12, 14, 26, 25, 30], threshold= 20 CO2 CO3

OR

b. A set of integers is given. Construct a recursive function that finds the sum of all elements.

i. Example input: [1, 2, 3, 4]. Expected output: 10
ii. Also explain the role of the base case in recursion. CO2 CO3

Q5. (10 Marks)

a. Write a function to take a number as input and return its square root. *Add exception handling* for invalid inputs (like negative numbers).

i. Example input: -25
ii. Expected output: Square root not defined for negative numbers. CO1 CO2

OR

b. Create a function separate_days(days_tuple) that takes a tuple of days ("Mon", "Tue", "Wed", "Thu", "Fri", "Sat", "Sun") and returns two lists: weekdays and weekends. Explain why a tuple is suitable for storing days of the week. CO3 CO4