JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -3 EXAMINATIONS- 2026

B.Tech-II Semester (CSE/IT)

COURSE CODE (CREDITS): 18B11CI314 (3) MAX MARKS: 35

COURSE NAME: Python Programming Essentials

COURSE INSTRUCTOR: Dr. Harsh Srivastava MAX. TIME: 2 Hours

Note: *(a) All questions are compulsory.*

(b) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems

(c) Use of calculator is not allowed

Q.No	Question	CO	Marks
Q1	Explain the concepts of a *program* and *debugging* in Python programming. Differentiate between formal and natural languages, and describe the steps involved in downloading, installing, and running a simple Python program.	CO1	5
Q2	Discuss variables, expressions, and functions in Python. Explain the role of operators, operands, type conversion functions, and mathematical functions with suitable examples.	CO1	5
Q3	Explain the working of the while loop, the use of the break statement, and the importance of string manipulation in solving problems such as finding the square root using guess-and-check and approximation methods.	CO2	5
Q4	Explain the concepts of decomposition and abstraction in Python programming. Compare lists, tuples, and dictionaries, and discuss their operations, methods, and applications with suitable examples.	CO3	5
Q5	Discuss the importance of files, modules, and packages in Python. Explain text file handling, reading and writing files, exception handling, assertions, and the role of testing and debugging tools such as unittest and pdb.	CO4	5
Q6	Explain the principles of Object-Oriented Programming (OOP) in Python, including classes, objects, inheritance, and polymorphism. Discuss illustrative applications such as sorting, searching, and regular expressions in Python.	CO4	5+5