Core Course (CC)
Semester I
BSDB31101T: Problem Solving using Computers

Total Marks: 100
External Marks: 70
Internal Marks: 30
Credits: 4
Pass Percentage: 40%

Objective

Objective of this paper is to explain the basic of Python concepts objects, data structures and concepts related to Methods and Functions in python. Paper explicate Object Oriented Programming with Python and comprehend the concepts related to Python Generators and file handling.

INSTRUCTIONS FOR THE PAPER SETTER/EXAMINER

1. The syllabus prescribed should be strictly adhered to.
2. The question paper will consist of three sections: A, B, and C. Sections A and B will have four questions from the respective sections of the syllabus and will carry 10 marks each. The candidates will attempt two questions from each section.
3. Section C will have fifteen short answer questions covering the entire syllabus. Each question will carry 3 marks. Candidates will attempt any ten questions from this section.
4. The examiner shall give a clear instruction to the candidates to attempt questions only at one place and only once. Second or subsequent attempts, unless the earlier ones have been crossed out, shall not be evaluated.
5. The duration of each paper will be three hours.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt any two questions each from the sections A and B of the question paper and any ten short questions from Section C. They have to attempt questions only at one place and only once. Second or subsequent attempts, unless the earlier ones have been crossed out, shall not be evaluated.

Section A

Unit I: **Introduction:** Python installation and setup, Command line Basics; Python Objects and Data Structures Basics: Introduction to Python data types, Variable assignments, Numbers, String, String methods, Lists

Unit II: **Python Comparison Operators:** Chaining comparison operators with logical operators, Pass Break and continue.

Unit III: **Program Flow control in Python:** If Elif and Else statements in python, for loops, While loops

Unit IV: **Methods and Functions in python:** Introduction to functions, Def keyword, User defined functions, arguments and parameters, Parameter naming in python

Section B

Unit V: Object Oriented Programming: Introduction, Classes and objects, attributes and methods, Inheritance and polymorphism, Special methods; Modules and Packages: Pip install and PyPi.

Unit VI: Errors and Exception Handling: Introduction to errors, Built-in errors, raising errors in python, Pylint overview

Unit VII: Python Generators: Yielding and Generator function, Making an iterable from a generator, Generator expressions and performance.

Unit VIII: File handling in Python: Files in python, importing own files, Read and writing text files, working with CSV, XML and JSON files.

Suggested Readings

1. Timothy Budd, Exploring Python, TMH, 1st Ed, 2011
3. Allen Downey, Jeffrey Elkner, Chris Meyers , How to think like a computer scientist : learning with Python , Green Tea Pr, 2002
4. Paul Barry, Head First Python: A Brain-Friendly Guide, O'Reilly, 2nd ed. 2016
5.Udemy, https://www.udemy.com/course/complete-python-bootcamp/
6. Udemy, https://www.udemy.com/course/python-the-complete-python-developer-course/