

MCA (5 Years and 6 Months Integrated Programme) Semester – X
(Credit Based Continuous Evaluation Grading System)

CSL599: Computational Problem Solving Using Python

Total Marks: 100

CREDITS

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4	0	0

Note for Paper Setter:

There will be eight questions of equal marks, two in each of the four sections (Section A to D), corresponding to the distribution of the syllabus. The paper setters are requested to make sub-section (not exceeding 4) of the questions and allocate appropriate marks to each sub section.

Note for Candidate:

Attempt five questions in all by selecting one question from each section and the fifth question may be attempted from any sections.

Unit – I

Introduction to Python: Process of Computational Problem Solving, Python Programming Language

Data and Expressions: Literals, Variables and Identifiers, Operators, Expressions, Statements and Data Types

Control Structures: Boolean Expressions (Conditions), Logical Operators, Selection Control, Nested conditions, Debugging

Unit – II

Lists: List Structures, Lists (Sequences) in Python, Iterating Over Lists (Sequences) in Python

Functions: Fundamental Concepts, Program Routines, Flow of Execution, Parameters & Arguments

Iteration: While statement, Definite loops using For, Loop Patterns, Recursive Functions, Recursive Problem Solving, Iteration vs. Recursion

Unit – III

Dictionaries: Dictionaries and Files, Looping and dictionaries, Advanced text parsing

Files: Opening Files, Using Text Files, String Processing, Exception Handling

Objects and Their Use: Introduction to Object Oriented Programming

Modular Design: Modules, Top-Down Design, Python Modules

Unit – IV

Using Databases and SQL: Database Concepts, SQLite Manager Firefox Add-on, SQL basic summary, Basic Data modeling, Programming with multiple tables

Reference Books:

1. Python for Informatics, Charles Severance, version 0.0.7
2. Introduction to Computer Science Using Python: A Computational Problem-Solving Focus, Charles Dierbach, Wiley Publications, 2012, ISBN : 978-0-470-91204-1
3. Introduction To Computation And Programming Using Python, GUTTAG JOHN V, PHI, 2014, ISBN-13: 978-8120348660
4. Introduction to Computating & Problem Solving Through Python, Jeeva Jose and Sojan P. Lal, Khanna Publishers, 2015, ISBN-13: 978-9382609810
5. Introduction to Computing and Programming in Python, Mark J. Guzdial, Pearson Education, 2015, ISBN-13: 978-9332556591
6. Fundamentals of Python by Kenneth Lambert, Course Technology, Cengage Learning , 2015
7. Learning Python by Mark Lutz, 5th Edition, O'Reilly Media, 2013