

**Faculty of Science**  
**B.Sc (Data Science) I-Year, CBCS –II Semester**  
**Regular Examinations -June/July, 2022**  
**PAPER: Problem Solving and Python Programming**

Time: 3 Hours

Max Marks: 80

**Section-A**

- I. Answer any *eight* of the following (8x4=32 Marks)
1. Write about Python Variables and Identifiers.
  2. Explain Python Input and Output Operations.
  3. Explain the usage of Is Operator.
  4. Discuss about Scope and Life Time of Variables with respect to functions.
  5. Explain Command Line Arguments with benefits.
  6. How do you access characters from Strings based on Index Numbers? Explain.
  7. Create and access a Tuple.
  8. Explain operations performed on Dictionary.
  9. Explain Python Exception Handling.
  10. Explain the Constructor method.
  11. Differentiate class attributes from data attributes.
  12. Write about Lambda function.

**Section-B**

- II. Answer the following questions (4x12=48 Marks)
13. (a) Explain Decision Control Statements of Python with Syntaxes.  
(OR)  
(b) Discuss about Pseudo code, Flow Chart and Algorithms.
14. (a) Explain the Built in Functions and Modules of Python.  
(OR)  
(b) What is String? Explain storing, slicing and joining of Strings. What is the importance of slicing and joining?
15. (a) (i) What is List? Explain various operations performed on Lists.  
(ii) Explain Selection Sort.  
(OR)  
(b) (i) Explain reading and writing of Text files.  
(ii) Discuss about built in Packages of Python.
16. (a) (i) Explain creation of Classes in Python.  
(ii) Explain Implementation of Inheritance in Python.  
(OR)  
(b) (i) Write about Python Generators.  
(ii) Using List Comprehension create a new list based on the values of existing list.

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## Faculty of Science

**B.Sc (Data Science) I-Year, CBCS –II Semester Backlog Examinations –Jan, 2023****PAPER: Problem Solving and Python Programming**

Time: 3 Hours

Max Marks: 80

**Section-A**I. Answer any *eight* of the following questions (8x4=32 Marks)

1. Write the fundamentals of computing. Specify different computing devices.
2. Describe the Variables and Identifiers in Python.
3. Explain the continue and break statements in Python.
4. Write the Built-In Functions of Python.
5. Write the basic String Operations.
6. Write a short note on Command Line Arguments.
7. What are Dictionaries? Write the Operations on Dictionaries.
8. What are Lists? Explain List Methods.
9. Define Tuples. Explain Tuple Assignment.
10. What is Constructor Method? How to create it?
11. Differentiate Class Attributes Versus Data Attributes.
12. Write a short note on Lambda.

**Section-B**

II. Answer the following questions (4x12=48 Marks)

13. (a) Define an Algorithm. Write the characteristics of it. Explain the Building Blocks of Algorithms.  
(OR)  
(b) Describe the Decision Control Statements in Python.
14. (a) Explain the Scope and Life Time of Variables using an example Python program.  
(OR)  
(b) How to create a String? Explain String Slicing and Joining in detail.
15. (a) Write a Python program for Selection sort.  
(OR)  
(b) What are Exceptions? How to handle Exceptions in Python?
16. (a) How to Create Classes and Objects in Python? Explain Encapsulation in Python.  
(OR)  
(b) Explain List Comprehensions in detail.

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## Faculty of Science

## B.Sc(Data Science)I-Year, CBCS–II Semester Regular Examinations –June, 2023

## PAPER: Problem Solving and Data Science

Time: 3 Hours

Max Marks: 80

## Section-A

- I. Answer any *eight* of the following questions (8x4=32 Marks)
1. Explain, How to Identify Computational Problems?
  2. Explain building blocks of an Algorithm.
  3. Write about Python Interpreter and Instructions.
  4. Write about Return statement and void function.
  5. Explain args and kwargs.
  6. Explain Formatting of strings.
  7. Explain List mutability and aliasing.
  8. Discuss the usage of Tuple as return value.
  9. Write a Python program to find word count.
  10. Explain the Constructor Method.
  11. Explain Classes and Objects of Python.
  12. Explain Python List Comprehensions.

## Section-B

- II. Answer the following questions (4x12=48 Marks)
- 13.(a) i. Explain operators of Python.  
ii. What is Type Conversion? Explain type() function.  
(OR)  
(b) Explain Iterative statements of Python with Break and Continue statements.
- 14.(a) i. Explain user defined functions of Python.  
ii. Explain Command Line Arguments.  
(OR)  
(b) i. Explain basic String operations.  
ii. Explain String Slicing and Joining.
- 15.(a) What is a Dictionary? Explain operations and methods of Dictionary.  
(OR)  
(b) What is Exception? Explain Exception Handling of Python.
- 16.(a) Explain how Python implements Object Oriented Programming concepts.  
(OR)  
(b) Explain Generators and Iterators in Python.

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