

DIPLOMA OF COMPUTER APPLICATION

ASSIGNMENTS

DCA – 2nd SEMESTER



(SESSION 2023-2024)

**Centre for Distance and Online Education
Guru Jambheshwar University of Science
& Technology
Hisar - 125001**

**CENTRE FOR DISTANCE AND ONLINE EDUCATION (CDOE)
GURU JAMBHESHWAR UNIVERSITY OF SCIENCE & TECHNOLOGY,
HISAR**

**Course: Data Structures and Algorithms
Code: DCA-21-T**

**Sem.: 2nd
Maximum Marks: 30**

Important Instructions

1. Attempt all questions from each assignment given below.
2. Each assignment carries 15 marks.
3. All questions are to be attempted in legible handwriting on plane white A-4 size paper and upload the scanned copy of the assignments on student's portal.

Max Marks: 3*5=15

ASSIGNMENT-I

1. Define linked list and also specify the memory representation for linked list in the computer.
2. What is stack. Write an algorithm/function to convert an expression from infix to postfix using stack with example.
3. Consider the following data and construct a binary tree using in-order and pre-order traversal.
In-order traversal – 9, 8, 4, 2, 10, 5, 10, 1, 6, 3, 13, 12, 7
Pre-order traversal – 1, 2, 4, 8, 9, 5, 10, 10, 3, 6, 7, 12, 13

Max Marks: 3*5=15

ASSIGNMENT-II

1. Explain heap in detail and also write an algorithm/function to construct a heap with an example.
2. Define Warshall's algorithms with example.
3. What internal and external sorting techniques? Write an algorithm/function for bubble sort technique.

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**CENTRE FOR DISTANCE AND ONLINE EDUCATION (CDOE)
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HISAR**

**Course: Data Analytics
Paper Code: DCA-22-T**

**Sem.: 2nd
Maximum Marks: 30**

Important Instructions

4. Attempt all questions from each assignment given below.
5. Each assignment carries 15 marks.
6. All questions are to be attempted in legible handwriting on plane white A-4 size paper and upload the scanned copy of the assignments on student's portal.

Max Marks: 3*5=15

ASSIGNMENT-I

1. Define different data type in R with suitable coding and example.
2. Explain any five statistical functions used to summarise the data with the help of an example data file.
3. How charts help in data visualization. Explain different type of charts used in R to visualize the data appropriately.

Max Marks: 3*5=15

ASSIGNMENT-II

1. What do you mean by predictive modelling? Describe classification and performance metrics used in classification.
2. Explain simple and multiple linear regression. Also write the function used for linear regression in R with syntax.
3. Explain the terms.
 - a. Confusion matrix
 - b. F-measure
 - c. Kappa statistics
 - d. ROC

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**CENTRE FOR DISTANCE AND ONLINE EDUCATION (CDOE)
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**Course: Database Management System
Paper Code: DCA-23-T**

**Sem.: 2nd
Maximum Marks: 30**

Important Instructions

1. Attempt all questions from each assignment given below.
2. Each assignment carries 15 marks.
3. All questions are to be attempted in legible handwriting on plane white A-4 size paper and upload the scanned copy of the assignments on student's portal.

Max Marks: 3*5=15

ASSIGNMENT-I

- Q1. Explain the advantages of Database Management System over File Management System. Also explain the responsibilities of Database Administrator.
- Q2. Construct an ER diagram of a car insurance company whose customers own one or more cars each. Each car has associated with it zero to any number of recorded accidents.
- Q3. Use SELECT, INSERT, UPDATE and DELETE commands in SQL.

Max Marks: 3*5=15

ASSIGNMENT-2

- Q1. Differentiate between primary key, candidate key and super key.
- Q2. What do you mean by normalization? Explain in detail 1 NF, 2NF, 3NF.
- Q3. Describe transaction. Explain the properties and life cycle of transaction.

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**CENTRE FOR DISTANCE AND ONLINE EDUCATION (CDOE)
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**Course: Python Programming
Paper Code: DCA-24-T**

**Sem.: 2nd
Maximum Marks: 30**

Important Instructions

- i. Attempt all questions from each assignment given below.**
- ii. Each assignment carries 15 marks.**
- iii. All questions are to be attempted in legible handwriting on plane white A-4 size paper and same is uploaded through login your account.**

ASSIGNMENT-I

1. What are the reasons for python being the first programming language for learners?
2. (a) What is the role of indentation in python?
(b) Explain print() and input() function.
3. WAP to print table of a number and number should be inputted from user.

ASSIGNMENT-2

1. Write a Python program to count the number of even and odd numbers from a series of numbers.
Sample numbers: numbers = (1, 2, 3, 4, 5, 6, 7, 8, 9)
Expected Output:
Number of even numbers: 5
Number of odd numbers: 4.
2. Answer the following:
 - a) Write a Python script to add a key to a dictionary
Sample Dictionary: {0: 10, 1: 20}
Expected Result: {0: 10, 1: 20, 2: 30}
 - b) Write a Python script to check whether a given key already exists in a dictionary.
 - c) Write a Python program to iterate over dictionaries using for loops.
 - d) Write a Python program to sort a dictionary by key.
3. Explain List, Tuples, Sets and Strings in python; with any 2 operations. Explain with example.

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