CENTRE FOR DISTANCE AND ONLINE EDUCATION
GURU JAMBHESHWAR UNIVERSITY OF SCIENCE & TECHNOLOGY, HISAR

Paper: Data Structures **Semester: 1st**
Paper Code: DCS-11-T **Max. Marks 30**

Note: Important Instructions for Assignments.

- *Attempt **all questions** from the both assignments. Each question carries equal marks.*
- ***Typed and Xerox Copies of Assignments will not be accepted in any case.***
- *All questions are to be attempted in **legible handwriting and written** on plane white A-4 size paper.*
- *The student needs to scan all pages of handwritten assignment in **PDF format.***

ASSIGNMENT-1

Q1. What is an algorithm? Explain the basic characteristics of a good algorithm.

Q2. Define the concept of an array? Explain one-dimensional and multidimensional arrays with examples. Write a program to insert an element in the middle of an array.

Q3. What is a stack? Explain its basic operations such as push, pop, and peek.

ASSIGNMENT-2

Q1. What is a queue? Explain its basic operations and differentiate between a stack and a queue.

Q2. Discuss the basic concept of a Binary Tree. Write a program to delete a leaf node and node with two children of a Binary Search Tree (BST).

Q3. What is sorting? Explain any three sorting techniques such as bubble sort, selection sort, and insertion sort.

Prepared By:

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DIPLOMA IN CYBER SECURITY

Course Name: Data Communication & Networking **Semester:1st**
Paper Code: DCS-12-T **Max. 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 same is uploaded through login your account.

ASSIGNMENT-I

Q1. Explain the OSI Reference Model in detail. Describe the functions of all seven layers of the OSI model and explain how data communication takes place through these layers.

Q2. Explain the various network topologies in detail, including their characteristics, advantages, and disadvantages.

Q3. Explain the various switching techniques, covering their working principles, advantages, disadvantages, and applications.

ASSIGNMENT-2

Q1. What is an IP address? Discuss IP address classification and notation, along with the different classes of IP addresses and their uses.

Q2. Explain the TCP and UDP protocols in detail, covering their features, working mechanisms, advantages, and limitations.

Q3. Discuss WWW, HTTP, URL, and FTP, explaining their functions and how they are used for accessing and transferring information over the Internet.

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DIPLOMA IN CYBER SECURITY

Course Name: Python Programming **Semester:1st**
Paper Code: DCS-13-T **Max. 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 same is uploaded through login your account.

ASSIGNMENT-I

Q1. Discuss the history, features, advantages, and applications of Python. Also explain Python identifiers, character set, keywords, indentation, and comments.

Q2. Explain Python data types and variables in detail. Also explain the concept of namespaces.

Q3. Explain loop control statements with suitable examples.

ASSIGNMENT-2

Q1. What is a function in Python? Explain built-in functions, user-defined functions, the main function, defining and calling functions, and the importance of functions in modular programming.

Q2. What do you mean by parameter passing? Explain their use with suitable examples.

Q3. Explain inheritance and polymorphism in Python. Also explain how these concepts support code reusability.

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CENTRE FOR DISTANCE AND ONLINE EDUCATION
GURU JAMBHESHWAR UNIVERSITY OF SCIENCE & TECHNOLOGY, HISAR

Paper: Cryptography and Network Security **Semester: 1st**
Paper Code: DCS-14-T **Max. Marks 30**

Note: Important Instructions for Assignments.

- *Attempt **all questions** from the both assignments. Each question carries equal marks.*
- ***Typed and Xerox Copies of Assignments will not be accepted in any case.***
- *All questions are to be attempted in **legible handwriting and written** on plane white A-4 size paper.*
- *The student needs to scan all pages of handwritten assignment in **PDF format.***

ASSIGNMENT-1

Q1. Explain the difference between symmetric and asymmetric key cryptography with suitable examples.

Q2. What are cryptographic hash functions? Explain their main properties and applications.

Q3. Explain the working principle of the RSA algorithm and its role in secure communication.

ASSIGNMENT-2

Q1. What is a digital signature? Explain how it provides authentication and message integrity.

Q2. Explain the role of Kerberos and X.509 in authentication and secure communication.

Q3. What is IP Security (IPSec)? Explain the functions of Authentication Header (AH) and Encapsulating Security Payload (ESP).

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GURU JAMBHESHWAR UNIVERSITY OF SCIENCE & TECHNOLOGY, HISAR
CENTRE FOR DISTANCE AND ONLINE EDUCATION
DIPLOMA IN COMPUTER APPLICATION

Course Name: Operating System **Semester- 1st**
Code: DCS-15-T **Total 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 upload the scanned copy of the assignments on LMS portal.**

ASSIGNMENT – 1

Q1. What is Operating System? Explain different types of OS. 5
Q2. Differentiate between Multiprocessor and Multiprogramming. 5
Q3. Define CPU scheduling? Describe the difference between pre-emptive and non- pre-emptive scheduling algorithms. Discuss in detail. 5

ASSIGNMENT – 2

Q1. Short Note on:
1. Deadlock detection and recovery.
2. Deadlock prevention and avoidance 5

Q2. Explain the various terms:
1. Virtual Memory
2. Thrashing 5

Q3. Differentiate between UNIX and Windows based operating systems. 5

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