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| **SESSION** | **AugUsT 2023** |
| **PROGRAM** | **BACHELOR of COMPUTER APPLICATIONS (BCA)** |
| **SEMESTER** | **I** |
| **course CODE & NAME** | **dca1102 – Programming in c** |
| **CREDITS** | **4** |
| **nUMBER OF ASSIGNMENTS & Marks** | **02**  **30 Marks each** |

**SET – I**

**1. Describe various features of the C programming language.**

**Ans 1.**

**Features of the C Programming Language**

**Simplicity and Efficiency**: C is known for its straightforward syntax and ease of use. While its roots date back to the early days of computing, its simple structure has made it a staple in modern programming. Moreover, C programs are efficient and have a fast execution time due to their close relation to assembly language.

**Middle-level Language**: C is often referred to as a middle-level programming language. This means that it combines features of both high-level and low-level languages. While it provides

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**2. Explain various flow control statements in C with examples.**

**Ans 2.**

Flow control in C is crucial for directing the program execution sequence based on certain conditions. There are several flow control statements in C that include conditional statements, looping statements, and jump statements. Let's delve into each of them:

**1. CONDITIONAL STATEMENTS:**

a. **if** statement:

**3. Define a function. List and explain the categories of user-defined functions.**

**Ans 3.**

**Defining a Function:**

In programming, a function is a self-contained block of code that encapsulates a specific task or related group of tasks. In Python, functions are defined using the **def** keyword. Here's a basic example:

def greet(name):

return "Hello, " + name + "!"

In the above example, we have defined a function named **greet** that takes a single parameter, **name**, and returns a greeting string.

**2. Categories of User-Defined Functions:**

**SET - II**

**4. Define an array. How to initializea one-dimensional array? Explain with suitable examples.**

**Ans 4.**

**Definition of an Array:**

An array is a data structure that can hold more than one value at a time. It is a collection of variables that are accessed with an index number. Each element can be accessed by its position in the array. The majority of languages define the starting index of the array as 0.

**2. Initializing a One-Dimensional Array:**

In many programming languages, arrays are native data structures. However, Python doesn't

**5a. Define Structure and write the general syntax for declaring and accessing members.**

**b. List out the differences between unions and structures.**

**Ans 5.**

**5a Structure:**

**Definition:**

A structure (often referred to as a "struct") is a composite data type in many programming languages that groups together variables under a single name. These variables can be of different data types, and each of them is called a member of the structure. Structures are used for grouping data of different types together to describe a real-world entity in a more logical way.

General Syntax for Declaring a Structure:

**6. Explain the difference between static memory allocation and dynamic memory allocation in C. Explain various dynamic memory allocation function in c.**

**Ans 6.**

**STATIC MEMORY ALLOCATION:**

**Definition**: In static memory allocation, the memory for variables is allocated at compile time. The size of the memory to be allocated is known beforehand and remains fixed during the execution of the program.

**Duration**: Memory is allocated for the entire duration of the program's execution. Once allocated, the memory size cannot be changed.

**Storage**: Variables with static memory allocation are typically stored in the stack or data