



Roll No:

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**BTECH**  
**(SEM V) THEORY EXAMINATION 2023-24**  
**PRICIPLES OF PROGRAMMING LANGUAGES**

TIME: 3 HRS

M.MARKS: 70

**Note:** 1. Attempt all Sections. If require any missing data; then choose suitably.

**SECTION A**

1. Attempt *all* questions in brief.

2 x 7 = 14

a.	Differentiate between Error and Exception.
b.	Explain the public, private and protected access specifiers.
c.	Differentiate between Low-Level and High-Level Programming Languages.
d.	What is an Abstract Data Types?
e.	Discuss the importance of Constructors.
f.	Describe inline function with example.
g.	Elaborate Dynamic Scoping.

**SECTION B**

2. Attempt any *three* of the following:

7 x 3 = 21

a.	What are the various fields of an activation record? Explain how activation record looks like for every recursive call in case of factorial. Also draw activation tree for the same.
b.	Discuss about the fundamentals of Functional Programming Languages.
c.	Discuss lambda calculus? Write a note on free and bound variables in lambda calculus.
d.	Explain the concept of subtyping with suitable example. Also explain the properties of subtyping
e.	Discuss Inheritance with suitable example. Explain the different types of Inheritance in detail.

**SECTION C**

3. Attempt any *one* part of the following:

7 x 1 = 7

a.	Explain the various programming language paradigms.
b.	Give the complete Translation structure of the following statement: position = initial + rate * 60

4. Attempt any *one* part of the following:

7 x 1 = 7

a.	Write short note on- (i) Variables, constants and literals for a language. (ii) Compare C, C++ and LISP on the basis of various attributes.
b.	How a Pointer can be useful for a programmer? Also define Dangling pointer and void pointer with suitable example.

5. Attempt any *one* part of the following:

7 x 1 = 7

a.	Differentiate between call by value and call by reference parameter passing mechanism with the help of suitable example.
b.	Describe Overloaded methods and Generic Methods in detail with suitable example.



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6. Attempt any *one* part of the following: 7 x 1 = 7

a.	Discuss Object Oriented Programming. Explain the various features of Object-Oriented Programming with suitable example.
b.	Explain the following constructors with suitable example: (i). Default Constructor (ii). Argument Constructor (iii). Copy Constructor

7. Attempt any *one* part of the following: 7 x 1 = 7

a.	Describe facts and rules in Prolog with example. Write a program that describe relationships of the members in a family.
b.	Write a recursive function in SML to find the sum of digit of a number.

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