Register No.:   ………………………………   Name: ……………………………………………………

SAINTGITS COLLEGE OF ENGINEERING (AUTONOMOUS)

(AFFILIATED TO APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY, THIRUVANANTHAPURAM)

FOURTH SEMESTER B.TECH DEGREE EXAMINATION (Regular), MAY 2023

(2020 SCHEME)

Course Code :   **20CST282**

Course Name: **Programming Methodologies**

Max. Marks   :   **100**   **Duration: 3 Hours**

PART A
(Answer all questions. Each question carries 3 marks)

1. Define the Scope and Lifetime of a variable.
2. What is Referencing Environments?
3. Give any three list operations.
4. Define the term Type Checking.
5. Distinguish between iterative statements and Selection statements.
6. List the different type of parameters used in the subprograms.
7. What are the different design issues for Object Oriented Languages.
8. State the concept of Dynamic Binding in the object oriented programming language.
9. What is Term in PROLOG?
10. Compare Functional Programming Language with Logic Programming Language and also give one example for each.

PART B
(Answer one full question from each module, each question carries 14 marks)

MODULE I

11. a) List and Explain different Programming Domains.   (7)
     b) Explain the major methods of implementing programming languages.   (7)

OR

12. a) Explain different role of Programming Languages   (7)
     b) Consider the following pseudocode:
     x : integer := 3
     y : integer := 4
     procedure add
     x := x + y   (7)
     procedure second(P : procedure)
     x : integer := 5
     P()

procedure first
y : integer := 6
second(add)
first()
write integer(x)
(a) What does this program print if the language uses static scoping? Give reasons.
(b) What does it print if the language uses dynamic scoping? Give reasons.

MODULE II

13. a) Explain Conditional Expressions using an example.   (7)
     b) What is pointer data type? Explain any two problems associated with the pointer data types and also explain the solution for these problems   (7)

OR

14. a) Describe following data types
         I.   Array Types
         II.   Record Types   (9)
         III. List Types
     b) List and explain any three Primitive Data Types.   (5)

MODULE III

15. a) What is Selection statements? Explain Two-way selection and multiple selection statements with suitable example   (7)
     b) Explain different parameter passing methods in the Subprograms.   (7)

OR

16. a) Describe different design issues for subprograms.   (7)
     b) Explain Unconditional Branching statement using suitable example.   (7)

MODULE IV

17. a) Describe different Implementation of Object Oriented Constructs   (7)
     b) Explain different Design issues in exception handling   (7)

OR

18. a) Explain the following concepts of Object Oriented Programming in C++
              I.   Inheritance   (9)
              II.   Dynamic binding
              III. Encapsulation
     b) Why are destructors not as frequently needed in Java as they are in C++?
                                                                                              (5)

MODULE V

19. a) Compare the Functional and Imperative Languages   (7)

    b) Explain the fundamental concepts of concurrency in the subprogram level.   (7)

OR

20. a) In what ways are Common Lisp and Scheme opposites?   (5)

    b) Explain the role of monitors in concurrency   (9)

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