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

# SAINTGITS COLLEGE OF ENGINEERING (AUTONOMOUS)

(AFFILIATED TO APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY, THIRUVANANTHAPURAM)

**FOURTH SEMESTER B.TECH DEGREE EXAMINATION (Regular), JULY 2022**

**(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. List any three programming Domains.
2. Define binding and binding time.
3. Differentiate Primitive data types and User defined ordinal data types.
4. Illustrate the concept of Short-Circuit Evaluation with suitable example.
5. Distinguish between iterative statements and selection statements.
6. Describe about the Local Referencing Environments.
7. Explain the different design issues for Object Oriented Languages.
8. Explain the concept of inheritance in the Object Oriented Languages.
9. Explain the term Semaphores.
10. Write a short notes on applications of logical programming languages.

## PART B

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

### MODULE I

11. a) Explain different criteria used for evaluating languages. (7)
    b) Explain the major methods of implementing programming languages. (7)

**OR**

12. a) Illustrate the scope and life time of a variable with the suitable example. (7)
    b) Explain about referencing environment of a statement. Show the referencing environment at the indicated program points (1), (2), (3) & (4) for the following program segment. Assume that the programming language used is statically scoped. (7)

```
program example;
var a, b : integer;
procedure sub1;
var x, y: integer;
begin { sub1 }
```

```
……. (1)
end { sub1 }
procedure sub2;
var x : integer;
……..
procedure sub3;
var x: integer;
begin { sub3 }
……. (2)
end { sub3 }
begin { sub2 }
……. (3)
end { sub2}
begin {example}
……. (4)
end {example }
```

**MODULE II**

13. a) Describe Assignment Statements and Mixed-mode Assignment statements. (7)
    b) Describe about 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 Array , Record and List data types. (9)
    b) Illustrate Overloaded Operators with example. (5)

**MODULE III**

15. a) Write a short note on selection statements. Explain Two-way selection and Multiple selection statements with suitable examples. (7)
    b) Explain different parameter passing methods. (7)

**OR**

16. a) Explain the concept of subprograms and also describe different design issues for subprograms. (7)
    b) Explain in detail about the Guarded Commands. (7)

**MODULE IV**

17. a) Describe different implementation of Object-Oriented Constructs. (7)
    b) Explain about the exception handling techniques and different design issues in exception handling. Use a pseudocode-based demonstration for the above. (7)

**OR**

18. a) Explain inheritance, dynamic binding and encapsulation of Object-Oriented Programming in C++. (9)
    b) Define exception, exception handler, raising an exception, disabling an exception, continuation and built in exception. (5)

## MODULE V

19. a) Compare the Functional and Imperative Languages in detail. (7)
    b) Write a short note on the searching strategies used in Prolog. Why backward chaining is preferred over forward chaining in Prolog justify the reason? (7)

**OR**

20. a) Explain the fundamentals of functional programming languages with some standard examples. (7)
    b) Explain the role of monitors in concurrent programming. Demonstrate the same. (7)

**********