

Register No.: Name:

SAINTGITS COLLEGE OF ENGINEERING (AUTONOMOUS)

(AFFILIATED TO APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY, THIRUVANANTHAPURAM)

FOURTH SEMESTER B.TECH DEGREE EXAMINATION (R), MAY 2024**(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. Differentiate between reliability and cost.
2. Differentiate static type binding and dynamic type binding.
3. What are the two methods used to store multidimensional arrays in memory?
4. Differentiate name type equivalence, structure type equivalence.
5. What does the range function in Python do?
6. What is parametric polymorphism?
7. What is the purpose of the finalize clause in Java?
8. What is a friend function in C++?
9. Describe the syntax and semantics of LET in Scheme.
10. What are the applications of logical programming languages?

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

11. a) Compare the different programming paradigms. (7)
- b) Explain the different language implementation methods. (7)

OR

12. a) Explain the purposes, advantages and disadvantages of four categories of scalar variables according to their storage bindings. (7)
- b) Consider the following pseudocode:
x : integer := 3
y : integer := 4
procedure add (7)
x := x + y
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 briefly the different approaches to garbage collection. (7)
b) Compare the tombstone and lock-and-key methods of avoiding dangling pointers, from the points of view of safety and implementation cost. (7)

OR

14. a) Explain the terms: Explicit type conversion, coercion and short circuit evaluation. (7)
b) Do you think the elimination of overloaded operators in your favorite language would be beneficial? Justify. (7)

MODULE III

15. a) Describe briefly about guarded commands and specify its use. (6)
b) Explain different categories of iteration control statements. (8)

OR

16. a) Explain the concept of coroutines and how it differs from a subroutine. (6)
b) Differentiate the generic Functions in C++ and generic Methods in Java. (8)

MODULE IV

17. a) Compare the dynamic binding of C++ and Java. (8)
b) Compare the multiple inheritance of C++ with that provided by interfaces in Java. (6)

OR

18. a) What is an exception handler? Explain how exceptions are handled in object oriented language. (8)

- b) Explain the concept of event-driven programming. List out a few event handling components used in java. (6)

MODULE V

19. a) Differentiate Cooperation Synchronization and Competition Synchronization in Semaphores. (8)
b) Explain the role of monitors in concurrency. (6)

OR

20. a) Explain the basic elements of PROLOG. (14)
