Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Seventh Semester B.Tech Degree Supplementary Examination August 2021

Course Code: CS403

Course Name: PROGRAMMING PARADIGMS

Max. Marks: 100 Duration: 3 Hours

PART A

Answer all questions, each carries 4 marks. Marks

1 What do you mean by Lazy evaluation? (4)

2 Explain Fibonacci heap allocation with an example. (4)

3 What is the difference between strict and loose name equivalence? (4)

4 What do you mean by in-line function? Show the implementation of in-line function in any one language. (4)

5 What will be the output of the given program segment if it uses the following parameter passing mechanisms: (4)

a) call by reference

b) call by value

```
x : integer – – global
procedure foo(y : integer)
y := 3
    print x
    . . .
x := 2
foo(x)
print x
```

6 Explain the basic principles of functional programming. Name any two functional programming languages. (4)

7 Explain constructors and destructors. (4)

8 Write a short note on polymorphism. (4)

9 Write a note on V-table and its use. (4)

10 Explain the use of virtual machine concepts. (4)

PART B

Answer any two full questions, each carries 9 marks.

11 a) What do you mean by binding time? What are the different binding times? (5)

b) Explain various key events in object's lifetime with a neat diagram. (4)

12 a) Explain structural equivalence and name equivalence with example. (5)

b) Write a short note on records and recursive type. (4)

13 a) What is the importance of garbage collector? Explain reference count technique. (4)

b) (5)

```
x: integer := 1
y: integer := 2
procedure add
x := x + y
procedure second(P: procedure)
x:integer := 2
P()
procedure first
y:integer := 3
    second(add)
----main starts here---
first()
write_integer(x)
```

What would be the output of the above program segment if the language uses

a) deep binding.

b) shallow binding.

Justify your answer.

PART C

Answer any two full questions, each carries 9 marks.

14 a) Explain how does calling sequence maintain the subroutine call stack. (6)

b) Explain the use of stack pointer and frame pointer in stack layout. (3)

15 a) Explain about Data base manipulation in Prolog. How assert and retract works? (6)

b) Describe the terms Clauses, Terms and Structures in Prolog. (3)

16 a) Explain various parameter passing mechanisms in programming languages. (6)

b) Explains fundamentals concepts of lambda calculus. (3)

PART D

Answer any two full questions, each carries 12 marks.

17 a) Explain abstraction, encapsulation and inheritance. (6)

b) What are the innovative features of scripting languages? (6)

18 a) Explain 'Late binding of machine code'. What are its advantages and disadvantages? (6)

b) Explain any two synchronization strategies used in different languages. (6)

19 a) Write notes on dynamic method binding in object oriented programming. (6)

b) Explain Fork/join and Co-begin. (6)

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