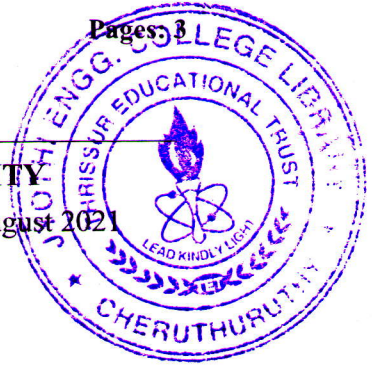


Reg No.: _____

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:
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 | (4) |
| 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) **x: integer := 1** (5)

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)

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- 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)
