Register No : _____

THE KAVERY ENGINEERING COLLEGE

(An Autonomous Institution)

M.E DEGREE END SEMESTER THEORY EXAMINATIONS, NOV /DEC 2024

First Semester

Computer Science and Engineering

PCST2404 - Principles of Programming Languages

Regulations – 2024

Duration : 3 Hrs *Maximum : 100 Marks*

*PART – A (ANSWER ALL QUESTIONS) (Marks 10*2=20)*

Q.No	*Questions*	*BLT*	*CO*	*Marks*
1.	List out the different components of the context free grammar used for programming language construction.	UN	1	2
2.	What is Backus-Naur form?	RE	1	2
3.	Outline the various categories of sequence control.	UN	2	2
4.	What is type checking?	RE	2	2
5.	What are the implementations of parameter passing?	RE	3	2
6.	What do you mean by referencing environment in sub program?	UN	3	2
7.	Define semaphores.	RE	4	2
8.	Write the C++ program to illustrate the use of “this” pointer.	AP	4	2
9.	When the prepositions are said to be horn clauses? Give an example.	UN	5	2
10.	Define Lamda Calculus.	RE	5	2

*PART – B (ANSWER ALL QUESTIONS) (Marks 5*13 = 65)*

Q.No		*Questions*	*BLT*	*CO*	*Marks*
11.	a	Explain in detail about the Recursive-Descent parsing.	UN	1	13
		Or			
	b	Describe the context-free grammar and regular expressions? Give the parse tree of the statement: A=(B+C)*(D/E).	EV	1	13
12.	a	Explain the scope and lifetime of variables. Illustrate when they would coincide and when they don’t?	AN	2	13
		Or			
	b	Explain the conditional statements and its implementations with examples.	UN	2	13
13.	a	Write in detail about the design issues of sub program and its operations.	UN	3	13
		Or			
	b	How the stacks are used in recursive subprograms explain with example and how it is differ from simple call-return subprograms?	AP	3	13
14.	a	Explain the different types of semaphores and how it helps to synchronize the task. How the monitors are differs from semaphores?	AN	4	13
		Or			
	b	How the exceptions are handled in C++? Explain with suitable examples.	UN	4	13

15.	a	Design a function retriv[list: i] which returns the i^{th} value in the list in Prolog and Lisp. Use the above function to search for a given key in a list of numbers and also to find the number of occurrences of the key in the list.	AN	5	13
		Or			
	b	Explain the functional features of LISP, Scheme and ML. Provide necessary example.	AP	5	13

*PART – C (Marks 1*15 = 15)*

Q.No		*Questions*	*BLT*	*CO*	*Marks*
16.	a	What are the block structures? How the concepts namely “static scope” and “dynamic scope” are related with block structures.	AN	3	15
		Or			
	b	How the left recursion affects the Recursive-Descent parser? Illustrate recursive descent parsing with an example and necessary parse tree representation.	AN	1	15