

THE KAVERY ENGINEERING COLLEGE
(An Autonomous Institution)

M.E DEGREE END SEMESTER THEORY EXAMINATIONS, NOV/DEC 2025

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.	What are the different ways to define languages?	L1	1	2
2.	Find the lexemes and tokens of this statement: value= 3*count + 20.	L2	1	2
3.	State the need of scope rules.	L1	2	2
4.	What is guarded command? Mention its limitations.	L1	2	2
5.	Find the design issues of functions.	L1	3	2
6.	Describe the deep- access method of implementing dynamic scoping.	L2	3	2
7.	Differentiate class variable and an instance variable.	L2	4	2
8.	When do you prefer binary semaphore over counting semaphore?	L1	4	2
9.	Illustrate Lambda expression with an example.	L2	5	2
10.	What are the syntactic forms and usage of fact and rule statements in Prolog?	L1	5	2

PART - B (ANSWER ALL QUESTIONS) (Marks 5*16 = 80)

Q.No	Questions	BLT	CO	Marks
11.	a Identify and explain the methods of describing the syntax for programming languages. Or b Using the grammar , build a parse tree and a leftmost derivation for each of the following statements: A = B * (C * (A + B)) $\langle \text{assign} \rangle \rightarrow \langle \text{id} \rangle = \langle \text{expr} \rangle$ $\langle \text{id} \rangle \rightarrow A \mid B \mid C$ $\langle \text{expr} \rangle \rightarrow \langle \text{expr} \rangle + \langle \text{term} \rangle$ $\quad \mid \langle \text{term} \rangle$ $\langle \text{term} \rangle \rightarrow \langle \text{term} \rangle * \langle \text{factor} \rangle$ $\quad \mid \langle \text{factor} \rangle$ $\langle \text{factor} \rangle \rightarrow (\langle \text{expr} \rangle$ $\quad \mid \langle \text{id} \rangle$	L3	1	16
12.	a Analyze and write a comparison of using C++ pointers and Java reference variables to refer to fixed heap dynamic variables. Use safety and convenience as the primary considerations in the comparison. Or	L4	2	16

	b	Examine about mixed mode and assignment statements. Illustrate with examples written in Ada and Java.	L4	2	16
13.	a	How the stacks are used in recursive subprograms. Explain with an example. How it is different from simple call-return subprograms.	L2	3	16
		Or			
	b	With illustrative example, explain the various parameter passing methods. Indicate the salient features of each.	L2	3	16
14.	a i	Appraise about the Object-oriented constructs in detail.	L5	4	8
	ii	Interpret on message passing in concurrency.	L5	4	8
		Or			
	b	Explain the Cooperation synchronization using shared buffer for implementing producer consumer problem.	L5	4	16
15.	a	Compare and contrast the functional features of LISP, Scheme and ML. Illustrate it with examples.	L4	5	16
		Or			
	b	Analyze about the basic elements of Prolog.	L4	5	16