

Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
SEVENTH SEMESTER B.TECH DEGREE EXAMINATION(R&S), DECEMBER 2019

Course Code: CS403
Course Name: PROGRAMMING PARADIGMS

Max. Marks: 100

Duration: 3 Hours

PART A*Answer all questions, each carries 4 marks.*

Marks

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| 1 | What is Referencing Environment? Explain the difference between Deep and Shallow binding of Referencing Environment? | (4) |
| 2 | What are holes? Why do they arise in records? What problems do they cause? What can be done to reduce these problems? | (4) |
| 3 | What are variant records? Give a sample and its memory layout. | (4) |
| 4 | Compare co-routine and subroutine? | (4) |
| 5 | Distinguish the three access specifiers in C++. | (4) |
| 6 | Differentiate Abstract classes and Concrete classes. | (4) |
| 7 | What are the benefits of Java Virtual Machine? | (4) |
| 8 | Define Horn clause and its components. | (4) |
| 9 | Differentiate between co-routines and threads. | (4) |
| 10 | What is RPC and stub compiler? | (4) |

PART B*Answer any two full questions, each carries 9 marks.*

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| 11 | a) Name the seven categories of control flow mechanisms in various programming languages. Explain each one with sample code. | (7) |
| | b) Define orthogonality as a language design tool | (2) |
| 12 | a) Compare primitive and composite data types. | (4) |
| | b) Explain static and dynamic type checking with example | (5) |
| 13 | a) What is the problem of dangling references? How is it addressed in different languages? | (5) |
| | b) What is short-circuit Boolean evaluation? Why is it useful? How it is implemented? | (4) |

PART C*Answer any two full questions, each carries 9 marks.*

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| 14 | a) What are the purposes of stack pointer and frame pointer registers? Explain how | (5) |
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these pointers are associated with subroutine linkages.

- b) What is generic subroutine? Give the merits of using them in our programs? (4)
- 15 a) List and explain any three features of functional languages. (3)
- b) Write the result of the Scheme expressions and explain how do you derived the result : (6)
- i) $(\text{let}((a\ 33))$
 $\text{let}((a\ 32)$
 $(b\ a))$
 $(+ a\ b)))$
- ii) $(\text{let}((x\ 24))$
 $(* x$
 $(\text{let}((x\ (/ x\ 3)))$
 $(+ x\ x))))$
- 16 a) Explain the difference between facts, rules and queries. Give example for each one. (6)
- b) What is in-line subroutine? How does it differ from macro? (3)

PART D

Answer any two full questions, each carries 12 marks.

- 17 a) What is shared memory? What are the two types of synchronization issues they face? Explain how these issues can be solved? (6)
- b) Explain the three principal issues in using message passing. (6)
- 18 a) List and explain the object oriented programming concepts. (6)
- b) What is shared inheritance? What is ambiguity problem in this and how the problem can be removed? (6)
- 19 a) What are constructors and destructors? Discuss the different forms of constructors included in C++. (6)
- b) Explain the Busy-wait synchronization mechanism. (6)
