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

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.

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.

14 a) What are the purposes of stack pointer and frame pointer registers? Explain how   (5)

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)   (let ((a 33))
               let ((a 32)
                 (b a))
           (+ a b)))
     ii)   (let ((x 24))
            (* x
              (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)

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