

\Roll No.: _____
 Amrita Vishwa Vidyapeetham
 Amrita School of Computing, Coimbatore
 B.Tech. Lab Exam– March 2024
 Sixth Semester
 Computer Science and Engineering
 19CSE313 Principles of Programming Language

Duration: One hours

Maximum: 20 Marks

SET 3

Course Outcomes (COs):

| CO | Course Outcomes |
|------|--|
| CO01 | Understand and write pure functional programs (especially in Haskell and Scala). |
| CO02 | Understand and write concurrent programs in Java. |
| CO03 | Formulate abstractions with higher order procedures. |
| CO04 | Formulate abstractions with data. |

| Rubrics | | |
|-------------------------|-------------------------|--------------------------|
| Q1 – Implementation (6) | Q2 – Implementation (6) | Output (Q1 + Q2 – 4 + 4) |
| 0 - Not done | 0 - Not done | 0 + 0 - Not done |
| 2-Base Case | 2 – Base case | 2 + 2 - Partial Output |

- Define a Init segment function in Haskell . The smallest initial segment of a list is the empty list. For a list of the form (x:xs), the initial segments can be obtained by inserting an x at the head of each initial segments of xs (and explicitly adding a fresh empty initial segment). Each initial segment is itself a list, so initsegs returns a list of lists.
 For Example > initsegs [1,2,3] gives [[],[1],[1,2],[1,2,3]] [CO01][BTL3][10]
- Write a higher Order function called “exists” that takes a predicate f and a list xx . The function returns true if takes a predicate f and a list xx and returns true if fx is true for some $x \in xs$. For eample: exists (<3) [1,2,4] returns “True”