

Time: 3 hours

Max. Marks: 75

Note: This question paper contains two parts A and B.  
Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

## PART - A

(25 Marks)

1. a) Define syntax and semantics. [2]
- b) List out language categories. [3]
- c) What is the purpose of assignment statement? [2]
- d) What is a variable? What are the attributes of a variable? [3]
- e) Differentiate between function and procedure. [2]
- f) Write an example of call and return statements. [3]
- g) What is the difference between a C++ class and an Ada package? [2]
- h) Define Semaphore and monitor. [3]
- i) Write the advantages of scripting languages. [2]
- j) What are the applications of functional programming languages? [3]

## PART - B

(50 Marks)

2. a) How can user-defined operator overloading harm the readability of a program? Explain. [7+3]
- b) Define grammars, derivation and a parse tree. [7+3]

OR

3. a) Discuss about language recognizers and language generators. [5+5]
- b) Describe the basic concept of axiomatic semantics. [5+5]

4. a) Explain in detail counter-controlled loops. [5+5]
- b) What are various design choices for string length? [5+5]

OR

5. a) What are the design issues for names? [3+7]
- b) Explain associative arrays, their structure and operations. [3+7]

6. a) Explain the scope and lifetime of variables with examples. [5+5]
- b) What are the characteristics of co-routine feature? List the languages which allow co-routines. [5+5]

OR

7. a) Explain how subprogram names are passed as parameters. Illustrate with examples. [5+5]
- b) Discuss user defined overloaded operators. [5+5]

8. a) What is meant by logic programming? Explain different types of applications of logic programming. [5+5]
- b) Discuss briefly exception handling in ADA. [5+5]

OR

9. a) What is the difference between checked and unchecked exception in java? [4+6]
- b) Briefly Explain the Sub-program level concurrency. [4+6]

10. a) Compare functions in ML and Haskell. [4+6]
- b) Write about the operations that can be performed on atoms and lists in LISP. [4+6]

OR

11. a) Make a comparison between functional and imperative languages. [5+5]
- b) Write a short note on data and procedural abstraction. [5+5]