

Code No: 115AN

**R13****JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD****B. Tech III Year I Semester Examinations, November/December - 2016****PRINCIPLES OF PROGRAMMING LANGUAGES****(Computer science and Engineering)****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]  
b) Define grammars, derivation and a parse tree. [3]

**OR**

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

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

**OR**

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

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

**OR**

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

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

**OR**

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

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

**OR**

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