**Code No: 115AN** **R13**

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD**
**B.Tech III Year I Semester Examinations, November/December - 2017**
**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) List the principal phases of compilation. [2]
b) Explain the features of denotational semantics. [3]
c) Explain about guarded commands. [2]
d) Differentiate between user defined and primitive data types with an example. [3]
e) Explain about the local referencing environments. [2]
f) Explain the design issues for functions. [3]
g) Explain the parts of smalltalk class. [2]
h) Distinguish between Competitive Synchronization and Cooperation synchronization. [3]
i) What is the type inferencing used in ML. [2]
j) What are the applications of functional programming languages. [3]

## PART - B

**(50 Marks)**

2.a) Distinguish between ambiguous grammer and attribute grammar with an example.
b) Construct the parse tree for the simple statement. [5+5]

A := B * (A + C)

**OR**

3.a) Explain about the preconditions and postconditions of a given statement mean in axiomatic semantics.
b) Describe the important factors influencing the writability of a language. [5+5]

4.a) Describe about the pointers in FORTRAN 90, Ada, pascal with an example.
b) Write the syntax and semantic rule of an attribute grammer for simple assignment statements. [5+5]

**OR**

5.a) Explain about the control structures with an example.
b) Explain the different types of Union with an example. [5+5]

6. Explain the different parameter passing methods with an example. [10]

**OR**



7.a) What is an overloaded subprogram explain with an example.
b) What are the characteristics of co-routine feature? List the languages which allow coroutines. [5+5]

8.a) What is semaphore. Explain the different types of semaphores.
b) Explain the design issues of an exception handling system. [5+5]

**OR**

9.a) Explain about the data abstraction for SIMULA 67.
b) Explain how to handle the exceptions in C++. [5+5]

10.a) Write a function that computes the sum of numbers using vectors in LISP.
b) Explain the different types of data types used in Python. [5+5]

**OR**

11.a) Explain how to handle exceptions in Java with an example.
b) Explain about the fundamentals of functional programming languages. [5+5]

**---ooOoo---**