Code No: 137GA **R16**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year I Semester Examinations, December - 2019
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 as sub questions.

PART – A

(25 Marks)

1.a)	Define Aliasing.	[2]
b)	What role does the symbol table play in a Compiler?	[3]
c)	What do you mean by *Dynamic Scope*?	[2]
d)	What do you mean by *Name*? List the primary design issues for *Names*.	[3]
e)	What are Formal Parameters?	[2]
f)	Define Abstract Data types.	[3]
g)	What do you mean by nesting class?	[2]
h)	Define Semaphore.	[3]
i)	Define imperative language.	[2]
j)	What are the three primary uses of symbolic logic in formal logic?	[3]

PART – B

(50 Marks)

2. a) Analyze various pre and post conditions of a given statement mean in axiomatic semantics.
b) Give some reasons why computer scientists and professional software developers should study general concepts of language design and evaluation. [5+5]

OR

3. What do you mean by attribute grammar? How is the order of evaluation of attributes determined for the trees of a given attribute grammar.Illsutare with an example. [10]

4 a) List and explain the differences between Ada's subtypes and derived types.
b) How can user-defined operator overloading harm the readability of a program? Illustrate with an example. [5+5]

OR

5.a) Compare the string manipulation capabilities of the class libraries of C++, Java, and C#.
b) Define Data type. Why every programming language supports different data types? Explain. [5+5]

6.a) List and explain different design issues for subprograms.
b) Describe different parameter passing methods with an example. [4+6]

OR

7.a) Explain the two methods of implementing blocks.
b) Describe three alternative means of allocating co-routine stacks. What are their relative strengths and weaknesses? [4+6]

8.a) Explain Type checking in Smalltalk with an example.

b) How are explicit locks supported in Java? Briefly discuss. [5+5]

OR

9.a) With an example explain how Co-operation Synchronization and Competition Synchronization are implemented using semaphores.

b) Describe Java's delegation event model. [6+4]

10.a) Explain how backtracking works in Prolog. Illustrate with an example.

b) What does *Lazy* Evaluation means? Explain with an example. [4+6]

OR

11.a) Explain the generate-and-test programming strategy in Prolog.

b) What support does LISP provide for functional programming? Explain briefly. [4+6]

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