

R16

Code No: 137GA

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. [5]
 - 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. Illustrate with an example. [10]
- 4 a) List and explain the differences between Ada's subtypes and derived types. [5]
 - 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#. [5]
 - 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. [4]
 - b) Describe different parameter passing methods with an example. [4+6]
- OR
- 7.a) Explain the two methods of implementing blocks. [4]
 - 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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