

R09

Code No: 55025

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY, HYDERABAD

B. Tech III Year I Semester Examinations, December - 2014

PRINCIPLES OF PROGRAMMING LANGUAGES

(Computer Science and Engineering)

Time: 3 hours

Max. Marks: 75

Answer any five questions

All questions carry equal marks

- 1.a) What effect will readability have on writability of a program? Discuss a suitable scenario.
- b) What are the advantages of implementing a language with a pure interpreter?
- 2.a) Define ambiguous grammar.
Consider the following grammar:
 $\langle \text{assign} \rangle \rightarrow \langle \text{id} \rangle := \langle \text{expr} \rangle$
 $\langle \text{id} \rangle \rightarrow A | B | C$
 $\langle \text{expr} \rangle \rightarrow \langle \text{expr} \rangle + \langle \text{expr} \rangle | \langle \text{expr} \rangle * \langle \text{expr} \rangle | (\langle \text{expr} \rangle) | \langle \text{id} \rangle$
Show that the grammar is ambiguous for the following sentence $A := B + C * A$
- b) Write EBNF and syntax graph descriptions for a C switch statement.
- 3.a) Define name type compatibility and structure type compatibility. Mention their merits.
- b) Define union, free union and discriminated union.
- c) What are the advantages and disadvantages of dynamic scoping?
- 4.a) What are the design issues for counter-controlled loop statements?
- b) What are guarded commands? Explain.
- 5.a) In what ways can aliases occur with pass-by-reference parameters?
- b) What is parametric polymorphism? Explain.
- 6.a) What are the three characteristic features of object-oriented languages?
- b) What are the design issues for language support for concurrency?
- 7.a) State the applications of logic programming.
- b) What is the difference between checked and unchecked exceptions in Java?
- 8.a) What are the two forms of DEFINE? Explain.
- b) Mention the key concepts of scripting languages.

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