

III B.Tech. I Semester Supplementary Examinations, May -2005
PRINCIPLES OF PROGRAMMING LANGUAGES
(Common to Computer Science & Engineering and Computer Science &
Systems Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. A programming language can be compiled or interpreted. Give relative advantages and disadvantages of compilation and interpretation. Give examples of compiled and interpreted languages.
2. Explain the formal method of defining syntax.
3. Define scope. Explain the static scope and dynamic scope with examples.
4. Assume a programming language is used to extensively manipulate arrays. What are the different array operations which you permit as language designer. Justify your choices.
5. (a) Discuss how generic functions are implemented in C++?
(b) Discuss about type-checking.
6. Discuss how abstract data types are implemented in SIMULA 67 and Ada.
7. Discuss the design issues of exception handling.
8. (a) Draw the internal representation for the following LISP statements.
 - i. (A B C D)
 - ii. (A (B C) D (E (F G)))(b) Give brief description about data objects in LISP.

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1. What are the significant characteristics of programming languages.
2. Why BNF is called a Meta language. How do you describe syntax of a language using BNF.
3. (a) Suppose a programming language supports implicit declarations. What are the advantages and disadvantages of it.
(b) Explain extent with the help of example.
4. What is selection statement. Explain different types of selection statements.
5. (a) Explain how subprogram names are passed as parameters?
(b) Explain how subprogram is overloaded? Give examples.
6. Explain java threads with examples.
7. (a) Explain the basic concepts of exception handling.
(b) In what way C++ throw specification differs from throw clause in java.
8. (a) Draw the internal representation for the following LISP statements.
 - i. (A B C D)
 - ii. (A (B C) D (E (F G)))
(b) Give brief description about data objects in LISP.

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1. What are the reasons for studying the concepts of programming languages.
2. What is BNF notation. Explain it with examples.
3. Define ordinal data type. Explain different ordinal data types.
4. (a) Explain different alternatives of assignment statement.
(b) What is short circuit evaluation.
5. (a) Explain how subprogram names are passed as parameters?
(b) Explain how subprogram is overloaded? Give examples.
6. Briefly describe cooperation synchronization and competition synchronization in semaphores.
7. (a) Write prolog program to compute the sum of numbers using arrays.
(b) Explain exception handling in java.
8. (a) Write a LISP function that calculates sum of numbers using a vector.
(b) Discuss briefly about LISP primitive data types.

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1. (a) What do you mean by imperative programming language.
(b) What makes a language portable.
(c) What are the differences between the special purpose and general purpose programming languages.
2. (a) Explain in detail about recursive descent parsing.
(b) Explain in detail about attribute grammars.
3. Write short notes on coercion, type error, type checking and strong typing.
4. (a) What is the role of parentheses with relate to precedence of operators.
(b) Explain conditional expression of C language.
(c) Explain the side - effect related to evaluation of expression.
5. (a) Discuss about generic subprogram in Ada.
(b) Explain how generic functions implemented in C++.
6. (a) Discuss cooperation synchronization and competition synchronization in message passing.
(b) Explain binary semaphores.
7. Explain any three deficiencies of prolog with examples.
8. Explain the PROG features of LISP.
