

Code No: T0521

**R07****SET - 1****II B. Tech II Semester, Supplementary Examinations, April/May – 2013****PRINCIPLES OF PROGRAMMING LANGUAGES**

(Computer Science and Engineering)

Time: 3 hours

Max. Marks: 80

Answer any **FIVE** QuestionsAll Questions carry **Equal** Marks

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1. a) Explain about the factors that influence the language design.  
b) Explain about the process of compilation. (8M+8M)
2. Define Axiomatic semantics. Explain it in context with Assignment statement, Sequence statements and Selection statements. (16M)
3. a) Explain in detail various design issues of Character string types.  
b) Explain pointers in C and C++ in detail. (8M+8M)
4. Explain in detail the following Control Structures:  
a) Compound Statements  
b) Unconditional Statements  
c) guarded commands (5M+5M+6M)
5. a) Explain various design issues for functions user defined overloaded operators.  
b) Explain about generic sub programs. (8M+8M)
6. Explain how concurrency control is implemented using semaphores and monitors. Give suitable examples. (16M)
7. a) Discuss about basic elements of Prolog.  
b) Discuss about exception handling in Java. (8M+8M)
8. a) Write a detail note on functions in ML.  
b) Give comparison of Functional and Imperative Languages. (8M+8M)

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**R07****SET - 2****II B. Tech II Semester, Supplementary Examinations, April/May – 2013****PRINCIPLES OF PROGRAMMING LANGUAGES**

(Computer Science and Engineering)

Time: 3 hours

Max. Marks: 80

Answer any **FIVE** QuestionsAll Questions carry **Equal** Marks

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1. Explain in detail the following Programming Paradigms:
  - a) Imperative
  - b) Functional Programming
  - c) Logic Programming

(5M+5M+6M)
2. Define Attribute grammars. Give an Attribute grammar for simple assignment statements. How is the order of evaluation of attributes determined for the trees of your Attribute grammar?
 

(16M)
3. Explain in detail the following data types:
  - a) array    b) associative    c) record    d) union    e) pointer

(16M)
4.
  - a) Distinguish between language generators and language recognizers.
  - b) Give grammar for simple assignment statements.
  - c) Give an unambiguous grammar for if-then-else.

(6M+5M+5M)
5.
  - a) Explain about different semantics models of parameter passing and implementation models of parameter passing.
  - b) Illustrate co-routines with example.

(8M+8M)
6.
  - a) What are the language design requirements for a language that supports abstract data types?
  - b) Explain in detail about monitors.

(8M+8M)
7.
  - a) Explain the basic elements of prolog and list applications of logic programming.
  - b) Explain in detail about Logic Programming.

(8M+8M)
8.
  - a) Explain the main features of Imperative Languages.
  - b) Write a LISP function Fib (n) that computes  $n^{\text{th}}$  Fibonacci number.

(8M+8M)

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**R07****SET - 3****II B. Tech II Semester, Supplementary Examinations, April/May – 2013****PRINCIPLES OF PROGRAMMING LANGUAGES**

(Computer Science and Engineering)

Time: 3 hours

Max. Marks: 80

Answer any **FIVE** QuestionsAll Questions carry **Equal** Marks

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1. a) Distinguish between Compilation and Interpretation.  
b) Explain in detail about Programming domains and Language categories. (8M+8M)
2. a) Give BNF and EBNF versions of an expression grammar.  
b) Explain about attribute grammars in detail. (8M+8M)
3. a) What is type checking? Discuss the various types of type checking.  
b) Explain about type compatibility. (8M+8M)
4. a) Explain in detail Arithmetic relational and Boolean expressions  
b) Explain in detail Assignment Statements. (8M+8M)
5. a) What are the three semantic models of parameter passing?  
b) Define shallow and deep binding for referencing environments of subprograms that have been passed as parameters. (8M+8M)
6. a) Explain in detail about Java threads and C# threads.  
b) Explain in detail about semaphores. (8M+8M)
7. a) Explain basic concepts and design issues of Exception handling.  
b) Discuss how Exception handlers are helpful in C++ Exception handling. (8M+8M)
8. a) Explain about LISP.  
b) Discuss about basic elements of Prolog. (8M+8M)

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**R07****SET - 4****II B. Tech II Semester, Supplementary Examinations, April/May – 2013****PRINCIPLES OF PROGRAMMING LANGUAGES**

(Computer Science and Engineering)

Time: 3 hours

Max. Marks: 80

Answer any **FIVE** QuestionsAll Questions carry **Equal** Marks

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1. Explain in detail the following Programming Language Implementation:
  - a) Compilation
  - b) Virtual Machines
  - c) Programming environments (5M+5M+6M)
2. a) How do you express the associativity of operators in grammar? Explain with an example.  
 b) Describe the basic concepts of Denotational semantics. (8M+8M)
3. a) Define Lifetime, Scope, and static Scope & Dynamic Scope. What are the general problems with static Scoping?  
 b) Discuss on implementation of pointer & reference types. (8M+8M)
4. a) Explain in detail Relational expressions, Boolean expressions and Short circuit Evaluation.  
 b) What are guarded commands? Explain. (8M+8M)
5. a) Explain co-routines in detail.  
 b) What are the generic characteristics of sub program? (11M+5M)
6. a) Explain parameterized Abstract Data Types.  
 b) Explain how message passing is implemented in Ada. (8M+8M)
7. a) Explain the basic concepts of exception handling? What are the design issues for exception handling systems?  
 b) Why were imperative features added to most dialects of LISP? (8M+8M)
8. a) Explain DEFINE function in detail with suitable example.  
 b) What are the features of ML. Explain? (8M+8M)