Code: 9A05501

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B.Tech II Year II Semester (R09) Regular & Supplementary Examinations, April/May 2013
PRINCIPLES OF PROGRAMMING LANGUAGES
(Information Technology)

Time: 3 hours   Max Marks: 70

Answer any FIVE questions
All questions carry equal marks
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1   (a)   Explain the characteristics that contribute to total cost of a programming.
    (b)   Explain some language design tradeoffs.

2   (a)   Explain axiomatic semantics for assignment statements and sequences.
    (b)   Distinguish between synthesized and inherited attributes.

3   (a)   Explain different implementation issues of character string types.
    (b)   What are design issues of enumeration data type?

4   (a)   Explain different forms of assignment statements with examples.
    (b)   What is mixed mode assignment? Explain with example.

5   (a)   Explain type-checking technique in parameter passing method.
    (b)   Discuss how generic functions are implemented in C++.

6   (a)   What is a task? What are different categories of tasks? Differentiate between task and subprogram.
    (b)   What is competition synchronization? Explain the need for competition synchronization.

7   (a)   What is meant by logic programming? Explain the uses of symbolic logic in formal logic.
    (b)   Explain exception handling in ML.

8   (a)   What are static scoped functional programming languages? Give brief description about them.
    (b)   Write a function to find the factorial of a given number using ML.

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1 (a)   With neat diagram explain different phases of a compiler.
   (b)   What are three fundamental features of object oriented programming language?

2   What are different types of notations available for expressing the syntax of a
         programming language? Explain in brief about each one with suitable examples.

3 (a)   Explain the concept of strong typing with examples.
   (b)   Explain the concept of type checking.

4   What is iterative statement? Explain the different types of iterative statements with
         examples.

5 (a)   What is operator overloading? Write a C++ Program for operator overloading?
   (b)   Explain generic functions in C++.

6 (a)   Explain Ada synchronous message passing model.
   (b)   What is a thread? Explain how threads are implemented in java.

7 (a)   What is event handling? What are the basic concepts of event handling?
   (b)   Explain about java event model.

8 (a)   Write short notes on separate compilation technique of python.
   (b)   Discuss with examples, the python procedure with a variable number of arguments.

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1　(a)　Explain the fundamental features of object oriented programming languages.
　　(b)　What do you mean by abstraction? Explain two different types of abstraction with examples.

2　(a)　What is BNF notation? How is this useful in expressing the syntax of a programming language? Write any two constructs of C languages in BNF notation.
　　(b)　Define a token. Explain with an example.

3　(a)　Explain the concept of binding and binding time with example.
　　(b)　What is aliasing? What are its disadvantages?

4　(a)　Explain logically controlled loops and their design issues.
　　(b)　What are design issues of counter controlled loops? Explain for statement of C based languages.

5　(a)　Distinguish between pass-by-result and pass-by-value-result.
　　(b)　Explain in detail two ways of mapping actual parameters to corresponding formal parameters.

6　(a)　Explain C# threading operations with examples.
　　(b)　What are advantages of monitors over semaphores?

7　(a)　In what way C++ throw specification differs from throw clause in java?
　　(b)　Explain the basic concepts of exception handling.

8　(a)　Discuss in detail about the different data structures that are present in LISP with suitable examples.
　　(b)　Explain with an example, the where clause using Haskell.

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Answer any FIVE questions
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1 (a)   Explain in detail various phases in the process of compilation.
   (b)   What are the fundamental features of object oriented programming?

2 (a)   Define CFG. State whether CFG is a language generator or recognizer.
   (b)   What is a parse tree? Explain with an example.
   (c)   What is an assertion? Explain with an example.

3 (a)   Explain dynamic scope of variable with example.
   (b)   Explain static scope of variables with example.

4 (a)   What is short circuit evaluation? Explain.
   (b)   What do you mean by scope and lifetime of a variable? Explain with examples.

5   Explain in detail different parameters passing methods?

6 (a)   What are parameterized abstract data type? Explain with examples in C++.
   (b)   What are the three possible levels of concurrency in programs?

7 (a)   Explain the negation problem in prolog.
   (b)   Explain about the basic elements of prolog.

8 (a)   Discuss in detail about the lists and list operations with respect to Meta language.
   (b)   Define inheritance. Explain multiple inheritance technique using python language.

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