CODE NO: R09221201 | R09 | SET No - 1

II B.TECH - II SEMESTER EXAMINATIONS, APRIL/MAY, 2011
PRINCIPLES OF PROGRAMMING LANGUAGES
(INFORMATION TECHNOLOGY)

Time: 3hours **Max. Marks: 75**

Answer any FIVE questions
All Questions Carry Equal Marks
- - -

1. How can knowledge of programming language characteristics benefits the whole computing Community? [15]

2.a) The two mathematical models of language description are generation and recognition. Describe how each can define the syntax of a programming language?
b) Develop an unambiguous grammar that describes the *if* statement. [8+7]

3.a) Explain all of the difference between subtypes and derived types.
b) Define union, free union and discriminated union? [8+7]

4.a) How does operand evaluation order interact with functional side effect ?
b) How does operand evaluation order interact with function side effects? [8+7]

5.a) Define Shallow and Deep binding for referencing environment of subprograms that Have been passed as parameters.
b) Write about Co routines. [8+7]

6.a) In what different places can the definition of a C++ member function appears?
b) What is a C++ namespace and what is its purpose? [8+7]

7. Explain the following with examples
a) Exception Handler
b) Disabling an exception
c) Continuation
d) Built-in Exception. [15]

8.a) What are the difference between CONS, LIST and APPENED?
b) Write a LISP function Fib(n) that computes nth Fibonacci number. [7+8]

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CODE NO: R09221201 | R09 | SET No - 2

II B.TECH - II SEMESTER EXAMINATIONS, APRIL/MAY, 2011
PRINCIPLES OF PROGRAMMING LANGUAGES
(INFORMATION TECHNOLOGY)

Time: 3hours **Max. Marks: 75**

Answer any FIVE questions
All Questions Carry Equal Marks
- - -

1. What are some features of specific programming languages you know whose rationales are a mystery to you? [15]

2. Write a BNF description of the Boolean expressions of Java, including the three operators &&, || and ! and the relational expressions? [15]

3.a) What are the design issues for character string types?
b) What array initialization feature is available in Ada that is not available in other common imperative languages? [7+8]

4. Write text program in c++, java and c# to determine the scope of a variable declared in a for statement. Specifically the code must determine whether such variable is visible after the body of the for statement. [15]

5.a) What are the different models of parameter passing methods? How are they implemented? Give example for each.
b) What causes a C++ template function to be instantiated? [8+7]

6. Write an analysis of the similarities of and differences between java packages and C++ namespaces? [15]

7. What run-time errors or conditions, if any, an Pascal programs detect and handle? [15]

8. What scoping rule is used in
a) COMMON LISP
b) ML
c) Haskell. [15]

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CODE NO: R09221201 | R09 | SET No - 3

II B.TECH - II SEMESTER EXAMINATIONS, APRIL/MAY, 2011
PRINCIPLES OF PROGRAMMING LANGUAGES
(INFORMATION TECHNOLOGY)

Time: 3hours **Max. Marks: 75**

Answer any FIVE questions
All Questions Carry Equal Marks
- - -

1. Many languages distinguish between UPPER CASE and LOWER CASE letters in user-defined names. What are the pros and cons of this design decision? [15]

2.a) Describe the basic concept of denotational semantics?
b) What is the difference between synthesized and inherited attributes? [7+8]

3. What are all of the differences between the enumeration types of C++ and those of java? How does a decimal value waste memory space? [15]

4. Determine whether the narrowing explicit type conversions in two languages you know provide errors messages when a converted value loses its usefulness? [15]

5. What are the modes, the conceptual models of transfer, the advantages and disadvantages of pass – by – value, pass – by – result, pass – by – value - result and pass – by - reference parameter- passing methods? [15]

6.a) What are the language design issues for abstract data types?
b) What are the disadvantages of designing an abstract data type to be a pointer? [7+8]

7. Write detailed compassion of the Exception Handling capabilities of C++ and those of JAVA? [15]

8. Define functional form and referential transparency? What data types were parts of the original LISP? [15]

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CODE NO: R09221201 | R09 | SET No - 4

II B.TECH - II SEMESTER EXAMINATIONS, APRIL/MAY, 2011
PRINCIPLES OF PROGRAMMING LANGUAGES
(INFORMATION TECHNOLOGY)

Time: 3hours **Max. Marks: 75**

Answer any FIVE questions
All Questions Carry Equal Marks
- - -

1. Which produces faster Program execution, a Compiler (or) pure interpreter? What role does the symbol table play in a compiler? [15]

2.a) Describe the approach of using axiomatic semantics to convert the correctness of a given program?
b) Convert the following EBNF to BNF
S->A{bA}
A-> a[b]A [7+8]

3. What is the purpose of the ACTION, GOTO table of an LR parser? Explain With Example? [15]

4. Write text program in c++, java and c# to determine the scope of a variable declared in a for statement. Specifically the code must determine whether such variable is visible after the body of the for statement. [15]

5. Define static, fixed stack-dynamic, fixed heap-dynamic and heap-dynamic array. What are the advantages of each? [15]

6.a) What is the primary problem with using semaphores to provide synchronization?
b) Explain the difference between physical and logical concurrency? [8+7]

7. What is root class of all java exception classes? What is pattern class of most java user defined exception classes? [15]

8.a) Write a detail note on functions in ML.
b) Give comparison of Functional and Imperative Languages. [7+8]

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