COMP 3 – 3 (RC)

S.E. (Comp.) (Sem. – III) (Revised Course) Examination, Nov./Dec. 2010
PRINCIPLES OF PROGRAMMING LANGUAGES

Duration : 3 Hours Max. Marks : 100

Instructions : *1) Answer **any five** questions by selecting at least **one** question from **each** Module.*
*2) Make **suitable** assumptions.*

MODULE – I

1. a) State and explain the various phases of compiler. **8**
   b) Define Binding time. State and explain the classes of Binding times. **6**
   c) Explain the Recursive Descent parsing algorithm with an example. **6**

2. a) Draw the parse tree for the following expression : **4**
   $Z = a/b * c + d.$
   b) Explain parse trees. Comment on ambiguity with respect to syntax of languages. **6**
   c) Write short notes on : **10**
      i) Firmware Computers
      ii) Virtual Computers.

MODULE – II

3. a) Explain the implementation of Subprogram Invocation. **8**
   b) What do you understand by an Activation record ? **5**
   c) Explain the following methods for transmitting parameters : **7**
      i) Call by Name
      ii) Call by Reference.

4. a) Distinguish between implicit and explicit sequence control. **6**
   b) Give tree structure representation for the following expression assuming C-precedence. **6**

$$\frac{-B \pm \sqrt{B^2 - 4 * A * C}}{2 * A}$$

   c) Explain the concept of binding of objects during execution of program. **8**

P.T.O.

MODULE – III

5. a) Explain the properties of Context-Sensitive and regular grammars. 6

   b) Explain the various ways for achieving the synchronization of tasks. 8

   c) Write short notes on the following : 6

      i) Critical Regions

      ii) Monitors.

6. a) Write a C program to implement the use of Switch statement. 5

   b) Explain Guarded Commands with examples. 5

   c) Write a note on exception and exception handlers. 6

   d) State and explain any two principles of Parallel programming languages. 4

MODULE – IV

7. a) Explain the following with respect to PASCAL. 12

      i) Sequence control

      ii) Numeric data types.

   b) Explain sequence control in LISP. 8

8. a) Write a program in Pascal to find the sum of an elements in an array. 6

   b) Explain the various structured data types in Smalltalk. 8

   c) Explain the advantages of Block structured languages. 6
