COMP 3 – 3 (RC)

S.E. (Comp.) (Semester – III) (RC) Examination, May/June 2013
PRINCIPLES OF PROGRAMMING LANGUAGES

Duration: 3 Hours | Total Marks: 100

Instruction : *Answer **any five** questions such that **at least one** question from **each** Module is selected.*

MODULE – I

1. a) Explain the following : 6
   i) Information hiding
   ii) Sub-program activation.
   b) Explain briefly the syntactic elements of a language. 6
   c) What does the term "Virtual Machine" mean ? What are its advantages and disadvantages ? 4
   d) What is parse tree ? Draw parse tree using BNF grammar for the assignment statement W = Y * (u + v). 4
2. a) When is a grammar ambiguous ? Give an example. What are the possible sources of ambiguity ? 6
   b) State and explain the various of compiler. 8
   c) What is translation ? Briefly explain the various specialized types of translators. 6

MODULE – II

3. a) List and explain the control statements for expressing the basic control forms of composition alternation and iteration. 6
   b) Explain the "PASCAL forward declaration". 8
   c) Define the following : 6
   i) Referencing operations
   ii) Global referencing environment
   iii) Local referencing environment
   iv) Predefined referencing environment.

P.T.O.

4. a) Compare the execution for simple call-return sub-program with recursive sub-programs. 8

   b) Explain the following storage management techniques : 8

      i) Stack-based storage management

      ii) Heap-based storage management.

   c) What is an activation record ? Explain its attributes. 4

MODULE – III

5. a) Explain the features of block structured languages with examples. 8

   b) Write short notes on the following : 12

      i) Semaphores

      ii) Monitors

      iii) Exception handling and issues.

6. a) Write a program in C to implement swith-case statement. 5

   b) Explain Guarded commands with example. 7

   c) Write a prolog program to illustrate the use of different arithmetic operators. 5

   d) Write a short note on 'critical section'. 3

MODULE – IV

7. a) Explain storage management in PASCAL. 6

   b) Explain sequence control in LISP. 6

   c) Differentiate between block structural languages and object-based languages taking example of each. 8