Repeat 6/6/14 (N)

COMP 3 – 3 (RC)

S.E. (Computers) (Semester – III) (RC) Examination, May/June 2014
PRINCIPLES OF PROGRAMMING LANGUAGES

Duration : 3 Hours | Total Marks : 100

Instructions : *1) Answer **any five** questions such that at least **one** question from **each** Module is selected.*
*2) Make **suitable** assumptions.*

MODULE – I

1. a) Explain different phases of compiler with an example. **7**
   b) Explain briefly the syntactic elements of a language. **5**
   c) Draw a parse three using BNF grammar for the assignment statement H = A + (B + C) * (K – J * R). **4**
   d) Define 'Binding Time'. State and explain the class of binding times. **4**

2. a) Explain ambiguous and unambiguous grammar with suitable example. List sources of ambiguity. How to eliminate ambiguity ? **8**
   b) Write a short note on following : **6**
      i) Virtual computers.
      ii) Language standardization.
   c) Explain a 'Finite State Automation' and also draw the FSA for all strings over {0, 1} ending with string 110. **6**

MODULE – II

3. a) Explicit return statement has problems of garbage and dangling references. Explain with example how this can be handled. **6**
   b) What is parameter transmission ? Differentiate between actual and formal parameters. Give suitable example and explain "Call by value - result". **8**
   c) Write short note on following : **6**
      i) Term rewriting.
      ii) Unification.

4. a) Explain activation record and its attributes. **6**
   b) What is aliasing of data objects ? Explain with example. **6**
   c) Explain the difference between recursive call and ordinary call of a program. How recursive sub-program call acts as an important sequence control structure in programming ? **8**

P.T.O.

MODULE – III

5. a) Explain the following with respect to synchronization of tasks : 8
   i) Semaphores.
   ii) Interrupts.
   iii) Critical regions.
   iv) Monitors.
   b) Write a note on exception and exception handlers. 6
   c) Explain the properties of context sensitive grammar and regular grammar. 6

6. a) Explain Guarded commands with example. 5
   b) State and explain the different principles of parallel programming languages. 5
   c) Write short notes on the following : 10
   i) Message passing.
   ii) Chomsky's hierarchy.

MODULE – IV

7. a) Discuss data objects in LISP. 8
   b) Explain how sequence control is implemented in small talk. 6
   c) Explain the following with respect to PASCAL : 6
   i) Storage management functions.
   ii) Structured data types.

8. a) Explain sequence control in LISP. 6
   b) How is string handling different in C++ and ADA. Give comparisons using code examples. 6
   c) Write a program in PASCAL to find sum of elements in an array. 8