7/12/2013 . M .

Regular

COMP 3 – 3 (RC)

S.E. (Computers) (Semester – III) (RC) Examination, Nov./Dec. 2013
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) What is language standardization ? Mention and explain different types of standards. 7
   b) Define 'Binding Time'. State and explain the class of Binding Times. 7
   c) Write short note on following : 6
      i) Firmware computers
      ii) Pushdown automation.
2. a) Explain a 'Finite State Automation'. And also draw the FSA for all strings over {0, 1} ending with string | 0 |. 6
   b) Explain different phases of a compiler with an example. 6
   c) Explain the following : 8
      i) Syntactic elements of a language.
      ii) Virtual computers.

MODULE – II

3. a) Explicit return statement has problems of garbage and dangling references. Explain with an example how this can be handled ? 7
   b) Explain static scope and dynamic scope. 4
   c) Explain with an example, short circuit boolean expression. 4
   d) Explain referencing environments. 5

P.T.O.

4. a) Explain Activation Record and its attributes in detail. 8

   b) What is a postfix expression ? Convert the given infix expression $1 \times 5 + 2 \times 6$ to postfix form and hence evaluate the postfix expression. 8

   c) Discuss the following methods of parameter transmission : 4
      i) Call by name
      ii) Call by reference.

MODULE – III

5. a) Explain the following : 9
      i) Semaphores
      ii) Exception and exception handlers
      iii) Monitors.

   b) Explain Guarded commands with example. 5

   c) What do you mean by a critical region ? Explain with a suitable example. 6

6. a) State and explain different principles of parallel programming languages. 4

   b) Write short notes on the following : 10
      i) Message passing
      ii) Chomsky's hierarchy.

   c) Write a program in C to explain recursion. 6

MODULE – IV

7. a) Explain sequence control in LISP. 6

   b) Write a program in PASCAL to find sum of elements in an array. 8

   c) Explain storage management in ADA. 6

8. a) Discuss data objects in LISP. 6

   b) Explain sequence control in smalltalk. 6

   c) Explain the following with respect to PASCAL : 8
      i) Structured data types
      ii) Storage management functions.