8/12/14 Regular (RC) COMP

COMP 3 – 3 (RC)

S.E. (Comp.) (Semester – III) (RC) Examination, Nov./Dec. 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 any suitable **assumptions**.*

MODULE – I

1. a) What is binding time ? State and explain the classes of binding time. 7
   b) State the primary reasons for studying programming languages. 6
   c) Explain type conversion and coercion with an example. 7

2. a) When is the grammar ambiguous ? Give an example. 5
   b) Explain the following :
      i) Information Hiding
      ii) Subprogram Activation. 7
   c) Explain the implementation of elementary data types. 8

MODULE – II

3. a) What do you understand by static scope and dynamic scope ? 6
   b) Give the tree structure representation of the following expression.
      $-B + \sqrt{(B\hat{}2 - 4AC)} \div 2A$
      Also give the prefix and postfix form of it. 5
   c) What do you mean by aliasing of data objects ? Explain with an example. 5
   d) What is a 'goto' statement ? State the advantages and disadvantages of 'goto' statements. 4

4. a) Explain the sequence control mechanism for arithmetic expression. 8
   b) What is an activation record ? Explain the attributes. 4
   c) Explain the uniform evaluation rule in evaluating an expression with an example. 6
   d) Differentiate between call by reference and call by value method. 2

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MODULE – III

5. a) Explain the properties of type 2 and type 3 grammars. 6
   b) What are coroutines ? Explain with the help of an example. 6
   c) Explain the significance of message passing with the help of an example. 6
   d) Write a short note on critical section. 2

6. a) Write a Prolog program to find factorial of a number. 7
   b) Explain producer consumer problem. Discuss its solution using semaphores. 7
   c) Explain various sequence control statements in Fortran. 6

MODULE – IV

7. a) Write a short note on data objects in Pascal. 7
   b) Explain structured data types in Smalltalk. 7
   c) Explain the various sequence control statements in Ada. 6

8. a) Write pascal program to find sum of n numbers. 5
   b) Explain data objects in LISP. 7
   c) Explain the different data types in Ada. 8