Total No. of Questions : 10] [Total No. of Printed Pages : 3

Roll No. .....

CS–602

B. E. (Sixth Semester) EXAMINATION, June, 2012

(Computer Science & Engg. Branch)

PRINCIPLES OF PROGRAMMING LANGUAGES

(CS – 602)

Time : Three Hours

Maximum Marks : 100

Minimum Pass Marks : 35

Note : Attempt *one* question from each Unit. All questions carry equal marks. Assume suitable data wherever necessary.

Unit – I

1. (a) Discuss syntax directed control flow. 10

   (b) Construct language for the given grammar : 10

   S = a

   S = aS

   S = bS

   Draw parse tree for any string.

   Or

2. (a) Explain Backus-Naus form briefly. 10

   (b) Discuss the desirable features and design issues of programming languages. 10

P. T. O.

Unit – II

3. (a) What is data object ? What is life time of data object ? Explain program and system defined data object. 10

   (b) Draw flow diagrams for the following program fragment : 10

```
Loop
    S1;
If E then exit end;
    S2;
    End.
```

Or

4. Explain the following terms with suitable examples : 20
   (a) Exception and Exception handler
   (b) Implicit and Explicit sequence control
   (c) Concurrent execution
   (d) Coercion

Unit – III

5. (a) What do you mean by current instruction pointer and current environment pointer ? How is it used for recursive subprograms ? 10

   (b) Explain scope, visibility and life time of variable. 10

Or

6. (a) Discuss the design issues for subprograms. 10

   (b) Define the following terms related to variables : 10
   (i) Life time
   (ii) Scope
   (iii) Static scope
   (iv) Dynamic scope

Unit – IV

7. (a) Define abstract data types. What are the language design issues regarding abstract data types ? 10

   (b) Explain stack based and heap based storage management briefly. 10

Or

8. (a) Explain inheritance concept in C++ and Java with its advantages and disadvantages. 10

   (b) What is monitors ? What are its advantages and disadvantages over semaphore ? 10

Unit – V

9. (a) Explain the use of predicate calculus in logic programming. 10

   (b) Explain the following type of statements with respect to PROLOG : 10

   (i) Fact statement

   (ii) Rule statement

   (iii) Goal statement

Or

10. Write short notes on the following : 20

    (a) Exception propagation

    (b) PROLOG

    (c) Predicate calculus

    (d) 4 GL