BT-3/D-23   43138
PRINCIPLES OF PROGRAMMING LANGUAGES
ES-227/205A

[Time: Three Hours]   [Maximum Marks:75]

Note : Attempt Five questions in all selecting at least one question from each Unit.

Unit I

1. (a) What are desirable characteristics of a good programming language ? Discuss. **5**

   (b) What is meant by type checking ? Differentiate between static type checking and dynamic type checking. **5**

   (c) Compare implicit and explicit type declarations with their merits and demerits. **5**

2. (a) Explain in detail the design issues of Boolean types and enumeration types. **7**

   (b) Define CFG. What does it mean for CFG to be ambiguous ? Give an example of left recursive rule of CFG. Also explain the significance of this rule. **8**

Unit II

3. (a) Explain in detail arrays, indices, subscript bindings, and array categories. **8**

(b) What do you understand by type equivalence ? Differentiate between name equivalence and structural equivalence along with their pros and cons. **7**

4. (a) Explain overloaded subprograms and generic subprograms with suitable examples. **5**

(b) Differentiate between union and structure. **5**

(c) Differentiate between procedural abstraction and data abstraction. **5**

Unit III

5. (a) What is the difference between "within statement" and "within expression" sequence control ? Explain using suitable examples. **8**

(b) Explain different types of subprogram controls with suitable examples. 7

6. (a) Explain about shared data dynamic and static scope with suitable examples. **8**

(b) Explain different types of subprogram level concurrency control mechanisms. **7**

Unit IV

7. Explain about stack based and system controlled storage management. **15**

8. (a) Differentiate between procedural and non-procedural programming languages. **8**

   (b) Compare key features of C and C++ programming languages. **7**