

Roll No. ....

Total Pages : 03

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

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## 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.
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