BT-3/D-22   43138
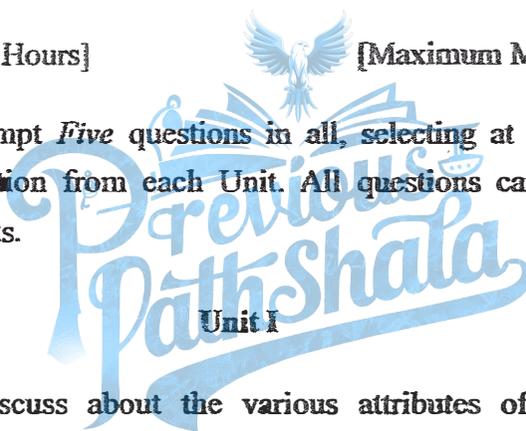
PRINCIPLES OF PROGRAMMING LANGUAGES
ES-227A

Time : Three Hours]   [Maximum Marks : 75

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks.

Unit I

1. (a) Discuss about the various attributes of a good language and explain the process of evaluating attributes with an example.   7.5

    (b) What is interpretation and translation process ? With neat diagram state the purpose of each activity in language processing with interpretation and translation.

2. (a) What is meant by type checking ? Differentiate between static type checking and dynamic type checking and give their relative advantages.   5

(b) Discuss various primitive data types with suitable examples. **5**

(c) What are the difficulties in using an attribute grammar to describe all of the syntax and static semantics of a contemporary programming language ? **5**

Unit II

3. (a) What do you mean by structural data types ? Give specifications of any *two* structural data types. **7.5**

(b) Define Vectors, Union, Records and Sets. Explain the usage of these with an example. **7.5**

4. (a) Define subprogram. What are the distinct categories of sub-programs ? **7.5**

(b) What are abstract data types ? What is the need of declaring abstract data type ? **7.5**

Unit III

5. (a) What is the difference between implicit and explicit sequence control ? Explain using suitable examples. **7.5**

(b) Discuss the reasons for using exception handlers in a programming language. Explain the basic concepts of exception handling. **7.5**

6. What is Synchronization ? Explain how synchronization can be achieved using semaphores using suitable examples.

15

Unit IV

7. Differentiate between the following :

(a) Heap and Stack Storage Management

(b) Variable and Fixed Size Elements. **15**

8. Compare the functional programming languages with Object Oriented programming languages. Also differentiate between C and C++ programming languages. **15**