

**BT-4/JX**  
**Programming Languages**  
**Paper : CSE-204E**

**8302**

Time : Three Hours]

[Maximum Marks : 100

**Note :-** Attempt **FIVE** questions in all, selecting at least **ONE** question from each Unit.

**UNIT-I**

1. (a) What do you mean by type checking and type conversion ?  
What is the significance of these concepts in a programming language ? 10
- (b) Explain the implementation of integer data types. 10
2. (a) Write and explain attribute grammar for assignment statement. 10
- (b) What are formal methods of describing syntax ? 10

**UNIT-II**

3. (a) Derive an access formula in a two-dimensional array to compute the offset of a component. 10
- (b) Differentiate between overloaded and generic subprograms. 10
4. (a) What do you mean by structured data types ? Give the specification of structured data types. 10
- (b) Explain the evolution of data type concept. 10

### UNIT-III

5. (a) What do you mean by sequence control within statements ?  
Explain different forms of statement level sequence control.  
10
- (b) Differentiate between sub-routine and co-routine. 10
6. (a) How semaphores can be used to provide Synchronization ?  
10
- (b) Explain Static-Scope rules for block structured Programming  
languages. 10

### UNIT-IV

7. (a) Explain storage management phases in detail. 10
- (b) Differentiate between Imperative and Functional languages.  
10
8. (a) Explain garbage-collection mechanism in Heap-storage  
management. 10
- (b) Differentiate between Java and C++. 10