

Roll No. ....

Total Pages : 3

MCA/M-15

10203

**PRINCIPLES OF PROGRAMMING LANGUAGES**

Paper-MCA-14-23

Time Allowed : 3 Hours]

[Maximum Marks : 80

**Note :** Attempt **five** questions in all, selecting at least **one** question from each Unit. Question No. 1 is compulsory. All questions carry equal marks.

**Compulsory Question**

- 1. (a) What is the difference between Imperative programming and Declarative programming?
- (b) What is the difference between HTML and XML?
- (c) What advantages are there in passing by reference instead of using Global variables?
- (d) What is a Scheduled subprogram?

**UNIT-I**

- 2. (a) What is Code optimization? Discuss the frequency reduction and strength reduction code optimizing transformations.
- (b) What are the desirable characteristics of a Good programming language? Explain.
- 3. (a) What is the difference between Lexical analysis and Syntax analysis? Explain using suitable examples.

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- (b) Write a note on Recursive Decent Parsing.

**UNIT-II**

- 4. (a) What do you understand by Type checking and Type conversion? Differentiate between Narrowing and Widening type conversion. Explain using suitable examples from C.
- (b) What do you understand by Ambiguous grammar? Explain using suitable examples.
- 5. (a) Give the finite state automation and the regular grammar for all strings over {0, 1} containing the string 010.
- (b) What is Type Equivalence? What are some advantages and disadvantages of language supporting type equivalence as (i) Name equivalence, (ii) Structural equivalence?

**UNIT-III**

- 6. (a) What is the difference between Eager evaluation and Lazy evaluation? Explain using suitable examples.
- (b) What is Polymorphism? What is the need of it? Differentiate between Run-time and Compile-time polymorphism.
- 7. (a) What do you understand by Implicit and Explicit sequence control? Discuss.
- (b) What is the difference between Hierarchy of Operators and Associativity of Operators? Explain using suitable examples.

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UNIT-IV

8. (a) What is the difference between Call by reference and Call by Value-result? Explain using suitable examples.
- (b) What do you understand by Coroutine sub-program? Why do we call them coroutine?
9. Write notes on the following :
  - (a) Heap storage management
  - (b) Call by name.