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MCA/M-20 **10531**

# 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. Answer the following questions in brief :

   (a) State any four programming paradigms.

   (b) Comment on the need of parsing.

   (c) What is a finite state automation?

   (d) What is a composite data type?

   (e) What is meant by abstract data type?

   (f) What do you mean by sequence control?

   (g) Differentiate between formal and actual parameters.

   (h) State the application areas of XML. 8×2=16

## UNIT–I

2. (a) Write a short note on effects of programming environment. 8

   (b) Describe various types of translators and their mechanism for translation in brief. 8

3. (a) What is BNF? Explain BNF using suitable examples. 8

   (b) How synthesis of an object program is done? Explain in brief. 8

## UNIT–II

4. What is Chomsky hierarchy? Explain various classes of formal grammars and provide suitable examples for each of the classes. 16

5. Explain following in detail :

   (i) Enumeration     (ii) Program verification

   (iii) Type checking    (iv) Attribute grammars. 16

## UNIT–III

6. (a) How the sequence control can be done within an expression? Explain using suitable examples. 8

   (b) Differentiate between implict and explicit sequence control. 8

7. Differentiate between following :

    (a) Inheritance and polymorphism.

    (b) Object-oriented programming and procedural programming.

    (c) Data abstraction and information abstraction.

16

## UNIT–IV

8. What is heap-storage management? How it can be done using variable and fixed size elements. 16

9. (a) What do you mean by dynamic and static scope of data? How it can be declared and used in a language? Explain. 8

    (b) Describe various parameters passing techniques in detail. 8