

Roll No.

Total Pages : 03

MCA/M-17

10003

PRINCIPLES OF PROGRAMMING
LANGUAGES
MCA-14-23

Time : Three Hours]

[Maximum Marks : 100

Note : Attempt *Five* questions in all. Q. No. 1 is compulsory.
In addition to that attempt *four* more questions, selecting
exactly *one* question from each Unit.

Compulsory Question

1. (a) Comment on the role of programming languages.
- (b) What do you mean by type checking ?
- (c) What is ambiguous grammar ?
- (d) What do you understand by parsing ?
- (e) Differentiate between classes and modules.
- (f) What do you mean by implicit sequence control ?
- (g) Name the various ways to store variables.
- (h) What is an applet ? 8×2=16

Unit I

2. (a) State and explain the features of a good programming language. 8

- (b) What do you understand by binding ? How can you classify bindings ? Explain with suitable examples. 8
3. What is a recursive-descent parser ? Explain by using suitable examples. Also explain the various characteristics of a grammar that allows a recursive-descent parser. 16

Unit II

4. (a) Show that the $S \rightarrow aSb|abS|\Lambda$ grammar is ambiguous, and find an equivalent unambiguous grammar. 8
- (b) Explain about context-free-grammars with examples. 8
5. (a) What do you understand by data type ? Describe the specification and implementation of data types in various languages ? 8
- (b) What is the role of Determinism in Pushdown automata ? Give an example of a deterministic pushdown automata accepted languages with PDA ? 8

Unit III

6. (a) What are the various ways that software component should be modified for reuse ? 8

- (b) Describe various implementation issues in Object-Oriented languages. 8
7. (a) Discuss the various problems with evaluation of expressions. 8
- (b) How the subprogram sequence control is handled ? Explain. 8

Unit IV

8. (a) Describe the statement-level, procedure-level and program-level parallelism in parallel programming. 8
- (b) What is network programming ? Explain various features and objectives of network programming. 8
9. What are the various programmer and system controller storage managements ? Explain static and heap storage management in detail using appropriate examples. 16