

**III B. Tech I Semester Supplementary Examinations, May - 2017**  
**PRINCIPLES OF PROGRAMMING LANGUAGES**  
(Computer Science and Engineering)

Time: 3 hours

Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)  
2. Answering the question in **Part-A** is compulsory  
3. Answer any **THREE** Questions from **Part-B**

**PART -A**

- 1 a) Write BNF notation for if-else statements. [4M]
- b) What is a dangling pointer? [4M]
- c) Define pass by result. [3M]
- d) Define mutual exclusion. [4M]
- e) What type inferencing is used in ML? [4M]
- f) List different forms of prolog term. [3M]

**PART -B**

- 2 a) List and explain different phases of compilation process. [8M]
- b) Write notes on context free grammars. How to identify whether a grammar is unambiguous? [8M]
- 3 a) Explain about static, fixed stack dynamic, fixed heap dynamic and dynamic arrays. [8M]
- b) List and explain design issues of pointers. [8M]
- 4 a) Discuss about scope and lifetime of a variable. What are the advantages of dynamic scoping over static scoping? [8M]
- b) Explain different types of parameter passing techniques. [8M]
- 5 a) Explain about different mechanisms to implement polymorphism in C++. [8M]
- b) Explain how message passing helps in concurrency control? Explain with an example. [8M]
- 6 a) Write a LISP function that computes  $n^{\text{th}}$  Fibonacci number. [8M]
- b) Explain in what ways ML is different from Scheme. [8M]
- 7 a) What are the applications of logic programming? Explain. [8M]
- b) Discuss about goal statements in prolog. [8M]

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