

--	--	--	--	--	--	--	--	--	--



## P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belgaum)

Sixth Semester, B.E. - Information Science and Engineering

Semester End Examination; June/July - 2015

Principles of Programming Languages

Time: 3 hrs

Max. Marks: 100

*Note: Answer any FIVE full questions, selecting at least TWO full questions from each part.*

### PART - A

1. a. Highlight the features of machine level, assembly level and high level languages. What are the benefits of HLLs. 5
- b. Compare compilation and interpretation. 5
- c. Define a data object. Briefly explain the attributes and bindings of the same. 5
- d. Bring out the four main factors that combine to obscure the definition of many programming language operations. 5
2. a. Explain the specification and implementation of integer data type. 10
- b. Mention the attributes of a vector. Explain the operation on and implementation of 1-d arrays. 10
3. a. Explain the concept of handling special cases in loops. 5
- b. Explain the disadvantages of 'go to' statements in PL. 5
- c. Explain the various proof rules for partial correctness. 10
4. a. What is parameter passing? Explain the various parameter passing methods. 10
- b. What are activation records? Explain the elements of and flow of control between activations with suitable illustrations. 10

### PART - B

5. a. Briefly explain the following with respect to OOP. 10
  - i) Class
  - ii) Inheritance
  - iii) Virtual function
  - iv) Encapsulation
  - v) Constructor
- b. What are the pre declared basic types in ML. Give examples and explain the operations on them. 5
- c. Describe the syntax of function declarations and applications. 5
6. a. With examples, explain approaches to expression evaluation. 10
- b. Explain the various bindings used in ML. 10
7. a. What are the basic functions for list manipulation? 5
- b. Write notes on : 5
  - i) Anonymous functions
  - ii) Selective copying
- c. What are type inference and parametric polymorphism? Explain. 5
- d. Explain the operations null, car, cdr and cons on lists in LISP. 5
8. a. What are various data structures in prolog? Explain the same. 10
- b. Explain control in prolog. 10