

2122
B. E. (Computer Science and Engineering)
Fifth Semester
CS-504: Principles of Programming Languages

Time allowed: 3 Hours

Max. Marks: 50

NOTE: Attempt five questions in all, including Question No. 1 which is compulsory and selecting two questions from each Unit.

x-x-x

I. Attempt the following:-

- a) Differentiate distributed v/s multiprocessor computing systems.
- b) What are the generic pointers?
- c) Explain briefly the first class and higher order functions.
- d) Explain backtracking in prolog.
- e) Differentiate direct and indirect encapsulation (5x2)

UNIT - I

- II. a) Compare and contrast the various programming language paradigms.
b) What are the parse trees? Explain ambiguity in parse trees. (2x5)
- III. a) Take any arithmetic expression and clearly explain the different phases of compiler design.
b) What is a referencing environment? Explain its types. (6,4)
- IV. a) Define monitors? Explain how cooperation synchronization is implemented using monitors.
b) What is the utility of activation record? Explain the procedure to implement call and return structures in subprograms. (2x5)

UNIT - II

- V. a) Explain static and stack storage management.
b) Explain the steps for heap storage management. (2x5)
- VI. a) Differentiate first class v/s higher order functions.
b) State difference between static and dynamic type checking along with their merits and demerits. (2x5)

P.T.O.

(2)

VII. Write note on the following:-

- a) Vector data structure
- b) Resolution and unification in prolog
- c) Higher order functions
- d) Type checking and type conversion

(4x2½)

x-x-x