Exam Code: 0917
Sub. Code: 6789

2022

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. I which is compulsory and selecting two questions from each Unit.*

x-x-x

I. Answer the following:-

a) What are the generic pointers and templates?

b) Define rule-based and object oriented languages.

c) What is the purpose of unification in Prolog? State unification rules.

d) What is static and dynamic type checking?

e) What is an activation record? (5x2)

UNIT - I

II. a) Write BNF and an equivalent EBNF expression that produces a binary string.

b) Explain by taking an expression the various stages of compiler design. Also explain the data structures associated with compiler design. (2x5)

III. What is the role of activation records in subprogram? Explain the same in the context of specification and implementation of subprograms. (10)

IV. a) What is resolution and backtracking in prolog?

b) Differentiate static and dynamic storage allocation. When the problem of dangling reference and garbage occurs? (2x5)

UNIT - II

V. a) What is heap storage management? Explain in detail the process of heap storage for variable size elements.

b) Write the steps to compute 1-value of 2-D array in Pascal language. (2x5)

P.T.O.

VI. a) What are the composite data types? Explain their specification and implementation in various programming languages.

b) What are the different storage representation techniques for strings? (6.4)

VII. How the synchronization is important for concurrent execution? What are the various mechanisms to maintain synchronization among the concurrent executing tasks? (10)

x-x-x