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B.E / B.Tech (FT) END SEMESTER EXAMINATIONS – APRIL / MAY 2019

COMPUTER SCIENCE AND ENGINEERING

Semester 6

CS8604 PROGRAMMING PARADIGMS

(Regulation 2012)

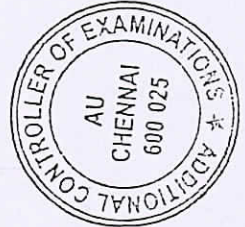
Time: 3 Hours

Answer ALL Questions

Max. Marks 100

PART-A (10 x 2 = 20 Marks)

1. Is Python static or dynamic scoping? Justify.
2. Draw parse tree for the expression, $a=b * c + d$ using the given grammar below
Expr \rightarrow Term + Expr | Term * Expr | Term, Term \rightarrow 0 | ... | 9 | (Expr)
3. What do you mean by short circuit evaluation?
4. Define partial functions.
5. Give the basic structure of an activation record.
6. List out the requirements for validating an individual function in Clite.
7. Why pure functional programming language is needed?
8. Define Curried function.
9. What is logic programming?
10. State the two properties of event-driven programming.



Part – B (5 x 16 = 80 marks)
(Question No.11 is Compulsory)

11. Write an event driven programming for tic-tac-toe game with two players, who can alternatively place X's and O's on a 3 X 3 grid. The winner of the player places 3 tokens (X or O) in a row, either horizontally, vertically or diagonally. Design the state variables, objects in frame, event-handlers that effectively monitor the play of the game and display the score of the players.
12. a) Explain the types of binding, type system and scope in programming languages with example.
(OR)
b) How a context free grammar can handle the associativity and precedence of an operator. Write the Grammar for left-to-right evaluation of arithmetic expression using Clite.
13. a) Write the semantics of Clite function call. Explain the dynamic behaviour of static memory, activation record for the function call of factorial program.
(OR)
b) Write a Mark-Sweep garbage collector garbage collection algorithm in C++ or Java. Compare advantage and its disadvantage of Mark-Sweep garbage collector with Copy-Collection garbage collector.

14. a) What are the general characteristics of Imperative programming language and compare it with C, Perl and ADA.

(OR)

b) What are the general characteristics of Object-Oriented programming language and compare it with Smalltalk, C++, and Java?

15. a) Explain the influence of Lambda calculus and other essential features in functional programming with example. (8)

Explain the expression evaluation, function handling, List and control flow statements in Scheme. (8)

(OR)

b) How logic programming paradigms differ from object-oriented programming paradigms. (8)

Write a prolog program to find the Fibonacci series of a given number. Draw the search tree of sub goals that prolog uses to compute the Fibonacci of 3. (8)

