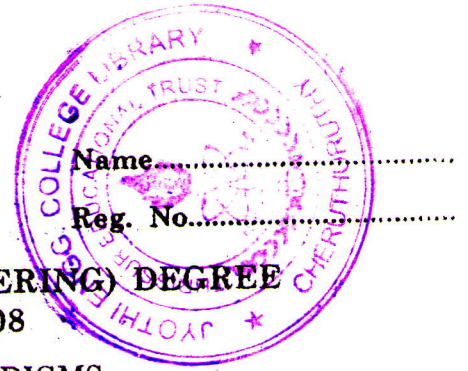C 48876

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FOURTH SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION, JUNE 2008

IT 04 405—PROGRAMMING PARADIGMS

(2004 Admissions)

Time : Three Hours

Maximum : 100 Marks

Part A

1. Explain the Benefits of Higher-level languages.

2. What are attribute grammars ? Write the productions and semantic rules for evaluating prefix expression.

3. Explain the method of linear search with sentinel.

4. Write notes on Data structures that grow and shrink.

5. Distinguish between program design with procedures and with modules.

6. What is association lists ? Explain the operations on association lists.

7. Explain how prolog performs computation based on unification.

8. How does two process interact ?

$(8 \times 5 = 40 \text{ marks})$

Part B

9. (a) Explain the four approaches to programming briefly.

Or

(b) Explain with examples the methods for specifying the semantics of let-expressions.

10. (a) Write notes on :

(i) Dynamic allocation in C++.

(ii) Implementation of objects in C++.

Or

(b) What is an object ? Represent binary trees, using a class for trees and a class for nodes. A binary tree is either empty or it consists of a root node with left subtree and a right subtree ; both of which are binary trees. How would you compute the number of nodes in a tree.

11. (a) Explain the following terms with respect to functional programming :—

(i) type inference.

(ii) Overloading.

(iii) Polymorphism.

Or

Turn over

(b) Explain the following :—

    (i) Operations on lists.

    (ii) Linear functions on lists.

    (iii) Winding and unwinding phases of linear recursive functions.

12. (a) What are cuts ? Explain the programming applications of cuts.

Or

(b) Write notes on :

    (i) Parallelism in hardware.

    (ii) Implicit synchronization.

(4 × 15 = 60 marks)