

(3 Hours)

(Total Marks: 80)

- N.B.:**
1. Question No.1 is compulsory.
 2. Answer any three out of remaining questions.
 3. Assume suitable data if necessary.
 4. Figures to the right indicate full marks.

- Q1.**
- a) Explain the difference between Declarative and Imperative Paradigms (05)
 - b) Explain List comprehension in Haskell with suitable examples (05)
 - c) What is scope and what are the scope rules? (05)
 - d) Write prolog code to find factorial of a number (05)
- Q2.**
- a) Explain database manipulation commands in Prolog with an example. (10)
 - b) Explain different storage allocation mechanisms. (10)
- Q3.**
- a) What is type checking? Also explain the difference between type equality, type compatibility and type inference with suitable programming examples. (10)
 - b) What is pattern matching and gated expressions in Haskell? Explain with an example. (10)
- Q4.**
- a) What is logic programming? Explain Facts, Rules and Query along with an example. (10)
 - b) Explain use of various list processing functions in the prelude environment of Haskell? (10)
- Q5.**
- a) Explain Type and Type classes in Haskell. (10)
 - b) Explain different storage allocation mechanisms. (10)
- Q6.** Short note on: (Any 4) (20)
- a) Lambda Function
 - b) Shallow v/s Deep Comparison
 - c) Backtracking in Prolog Programming
 - d) Stacking versus Dynamic scoping
 - e) Types of binding in Programming Languages