

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