

Time: (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 Encapsulation and Abstraction with suitable examples from C++ or Java. (05)
b) List various characteristics of scripting languages? (05)
c) Explain how infinite lists are supported in Haskell. Give suitable example. (05)
d) What are different programming paradigms? (05)
- Q2. a) Explain database manipulation commands in Prolog with an example. (10)
b) Explain different storage allocation mechanisms. (10)
- Q3. a) What is the role of an Exception Handler in a programming language? Briefly explain important tasks it performs. (10)
b) Explain lifecycle of a thread. (10)
- Q4. a) What is logic programming? Explain Facts and Rules along with an example. (10)
b) Discuss Call by value vs Call by reference with example code in C or C++. (10)
- Q5. a) Explain Type and Type classes in Haskell. (10)
b) What is Inheritance in OOP? Explain different types of Inheritance in OPP. (10)
- Q6. Short note on: (Any 4) (20)
a) Static Scoping vs. Dynamic Scoping
b) Need for thread synchronization in concurrent programming
c) Curried Function in Haskell
d) Lambda Calculus
e) Backtracking in Logic Programming
