

(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.

- Q. 1 (a) What are the different programming paradigms? [05]
 (b) What are the different problem domains of scripting languages? [05]
 (c) Explain List comprehension in Haskell with suitable examples [05]
 (d) Explain function overloading as one of the types of Polymorphism [05]
 using suitable examples.
- Q. 2 (a) Differentiate between static and dynamic binding with a suitable [10]
 programming example using C++ or Java
 (b) Explain unification and resolution in logic programming with suitable [10]
 example
- Q. 3 (a) What is type checking? Also explain the difference between type [10]
 equality, type compatibility and type inference with suitable
 programming example.
 (b) What are different types of Inheritance in OOP [05]
 (c) Explain how lists are used in Prolog with suitable example [05]
- Q. 4 (a) What are the parameter passing methods? Explain each with suitable [10]
 examples.
 (b) Write a program in Haskell to find factorial of a number using [05]
 recursion
 (c) What is the horn clause in predicate logic? Explain what are facts and [05]
 rules in logic programming?
- Q. 5 (a) What is exception handling? What is the difference between checked [10]
 and unchecked exceptions? Explain with suitable examples.
 (b) What is the need of synchronization in multi-threading? Write a [10]
 demonstrative program in Java to explain how multiple threads are
 executed
- Q. 6 Write short note on (Any 4) [20]
 (a) Lambda functions
 (b) Shallow and deep comparison
 (c) Polymorphism
 (d) Innovative features of scripting languages
 (e) Database manipulation in Prolog
