POKHARA UNIVERSITY

Level: Bachelor   Semester: Fall   Year   : 2018
Programme: BE   Full Marks: 100
Course: Principles of Programming Languages   Pass Marks: 45
                                            Time   : 3hrs.

Candidates are required to give their answers in their own words as far as practicable.
The figures in the margin indicate full marks.
Attempt all the questions.

1. a) What are the programming domains? How logical programming is differing with functional programming?   **8**
   b) "The complexity of programming led to the development of program design notations". If this is true explain with reference of Pseudo code.   **7**

2. a) What do you mean by dynamic chain of activation record? Explain the control structure of FORTRAN.   **8**
   b) Pass by reference is a dangerous proposition in FORTRAN". Justify this statement with suitable example.   **7**

3. a) Differentiate BNF with EBNF with the help of syntactic structure of ALGOL – 60.   **8**
   b) "ALGOL was a major milestone in programming languages". Justify this statement.   **7**

4. a) Differentiate among pass by value, pass by reference and pass by name with suitable example.   **5**
   b) What is property list? Differentiate between car and cdr.   **5**
   c) Why does a programming language need syntactic structure? Explain with reference by ALGOL-60.   **5**

5. a) What is polish notation? How hierarchical structures are processed in LISP?   **7**
   b) Translate the following expressions into LISP.   **8**

   i. $\dfrac{-b \pm \sqrt{b^2 - 4ac}}{\frac{1}{2}\sqrt{4a^2 - b^2}}$

   ii. $\dfrac{(abc)^2}{\sqrt[\frac{3}{4}]{s(s-a)(s-b)(s-c)}}$

6. a) Explain an object and class specification in SMALLTALK. How does class and object are represented diagrammatically in SMALLTALK?   **8**
   b) Explain Message Passing and Returning mechanism in Smalltalk.   **7**

7. Write short notes on: (**Any two**)   **2×5**
   a) Block and scope
   b) Characteristics of good programming language
   c) Zero-one infinity principle
   d) Lambda expressions