POKHARA UNIVERSITY

Level: Bachelor Semester: Fall Year : 2017
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 Amplicative and Reductive tools? Explain the Phenomenology of programming languages. 8
   b) Do you think that it is necessary to learn principal of programming language for software engineering students? What are the characters of good programming language? 7
2. a) How did FORTRAN come in such state? Define the major successive achievements. 7
   b) Illustrate looping in FORTRAN by writing a program to find out the cube root of the first ten natural numbers. 8
3. a) Why do ALGOL-60 'Pass by Name' is dangerous and expensive? Explain with supporting examples. 8
   b) Differentiate BNF with EBNF with the help of syntactic structure of ALGOL – 60. 7
4. a) "Pass by name is not only expensive but also dangerous". Justify with example. 4
   b) How does CAR and CDR help in searching the data elements? Explain with the help of walking down diagram. 6
   c) Differentiate among pass by value, pass by reference and pass by name with suitable example. 5
5. a) What is LISP? Define the structural organization of LISP program with example. 7
   b) Translate the following expression into LISP. 8
      i. $\frac{1}{2}\sqrt{4r^2 - l^2}$

      ii. $\frac{abc}{\sqrt{s(s-a)(s-b)(s-c)}}$
      iii. $\frac{n!}{r!(n-r)!}$
      iv. $\frac{\pi R^2 E}{180}$
6. a) How is a class represented in small talk? Explain in detail with an example. 8
   b) Describe three forms of message Template in Small Talk. 7
7. Write short notes on: (**Any two**) 2×5
   a) Contour diagram
   b) Computed GOTO
   c) Message passing and returning in Small talk
   d) Characters of good programming language