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S.E. (Computer Engg.) (Second Semester)

EXAMINATION, 2017

PRINCIPLES OF PROGRAMMING LANGUAGES

(2015 PATTERN)

Time : Two Hours   **Maximum Marks : 50**

N.B. :— (i) *All* questions are compulsory.

(ii) Figures to the right indicate full marks.

1. (a) List the Programming paradigms. For any three state which programming languages are based on them and how ? [6]

(a) What are benefits of implementing built-in data types in programming languages ? State the built-in data types implemented by C++. [7]

Or

2. (a) What is interpretation and translation process ? With neat diagram state the purpose of each activity in language processing with interpretation and translation. [6]

(b) What are abstract data types ? How C++ implements abstract data types ? Give example. [7]

3. (a) What are generic data structures and generic algorithms ? How C++ implements this generic programming constructs ? Give example of each. [6]

(b) Justify the meaning of each characteristic of Java in the

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statement "Java is simple, architecture neutral, portable, interpreted and robust and secured programming language". [6]

4. (a) What are challenges for Programming in Large ? How these are addressed by programming languages ? [6]

Or

(b) Write a program in Java to perform the addition of two matrices (multidimensional arrays) and set the diagonal elements of resultant matrix to 0. [6]

5. (a) Explain the concept of dynamic dispatch while overriding method in inheritance. Give example and advantages of doing so. [5]

(b) Write a program in Java which defines Class CONVERSION which converts one unit of length into another using multiplying factor. This class has data members unit_in, unit_out and multiplier. When user creates object, constructor accepts value of multiplier and sets this for further conversion of units. The object uses methods to get value of unit_in and output value of unit_out and stores these in class variables. [8]

Or

6. (a) State *two* major differences in class and an interface. "Interface gives multiple inheritance facility just as in C++" justify. [7]

(b) State the use of the following constructs in Java with example :

(1) final method declaration in super class while inheritance [6]

(2) abstract class declaration

(3) method overriding.

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7. (a) Define the term exception. State the advantage of exception handling. What are types of exceptions ? [6]

(b) State the use of the following methods for programming applet. Give example of using each of these, init( ), start( ), paint( ), stop( ), destroy( ), update( ). [6]

Or

8. (a) What is difference between byte streams and character streams ? Demonstrate the use of console class to get inputs and show results. [6]

(b) Write a program in Java to calculate the value of $((x + y)/(x - y))$. Program should prevent the condition $x - y = 0$. [6]