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**[5252]-570**

**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

P.T.O.

statement “Java is simple, architecture neutral, portable, interpreted and robust and secured programming language”.

[6]

*Or*

4. (a) What are challenges for Programming in Large ? How these are addressed by programming languages ? [6]
- (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 : [6]
- (1) final method declaration in super class while inheritance
  - (2) abstract class declaration
  - (3) method overriding.

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]