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**[5459]-194**

**S.E. (Computer Engg.) (Second Semester) EXAMINATION, 2018**  
**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) Explain the use of `paint()`, `update()` and `repaint()` methods for applet programming. What is the difference in `paint()` and `repaint()` methods ? [7]
- (b) What are predefined I/O classes ? Show with example how `BufferedReader` class is used in Java to receive character and a string inputs. [6]

*Or*

2. (a) What is Character Streams and Byte Streams ? State any *two* examples of each predefined Character and Byte Stream classes for I/O in Java. [7]
- (b) What is an exception in Java ? What do you mean by handling an exception ? Give example to show the use of `try()`, `Catch()` methods. [6]

P.T.O.

3. (a) What is an Interface ? What is the difference in class and an Interface ? What is use of declaring variables in an interface in Java ? [7]
- (b) State the difference in compile time and runtime polymorphism. Show how this is implemented in Java for overriding of methods. [6]

*Or*

4. (a) What is a Constructor ? Show with example the use and overloading of default, parameterized and copy constructor. [7]
- (b) What is use of a package in Java ? How CLASSPATH helps to store and retrieve the classes ? How is access protection provided for packages ? [6]
5. (a) What do you mean by reliability of software ? What are qualities of programming expected for reliability ? [6]
- (b) What is the purpose of checking type compatibility ? Explain various types of compatibility checks. [6]

*Or*

6. (a) What do you mean by Semantics ? Explain the axiomatic semantics with example. [6]
- (b) Explain by example the use of the following data aggregates to construct compound data types : [6]
- (1) Powerset
- (2) Finite Mapping.

7. (a) What is advantage of modularity in software design ? How Encapsulation and packaging helps to provide modularity for large programs ? [6]
- (b) What are objects and classes in Java ? State three major OO programming principles used in Java. [6]

*Or*

8. (a) State and explain four main programming paradigms. Which of these paradigms is used in Ada for programming ? [6]
- (b) Write a program in Java which reads a matrix of size 3 by 3 and performs the addition of elements in each row and each column. The program prints the each row and column additions. [6]