

S0133 / S2003 CORE JAVA

Q. P. Code: 19831

(2½ Hours)

[Total Marks: 75]

N.B. 1) All questions are compulsory.

2) Figures to the right indicate marks.

3) Illustrations, in-depth answers and diagrams will be appreciated.

4) Mixing of sub-questions is not allowed.

Q. 1 Attempt All(Each of 5Marks)
(15M)

(a) Multiple Choice Questions:

(i) Which keyword must be used to inherit a class:

- (A) super (B) extends
(C) implements (D) this

(ii) Which keyword is used by method to refer to the object that invoked it:

- (A) this (B) import
(C) final (D) static

(iii) Name the process of writing the state of an object to a byte stream:

- (A) externalization (B) writeobject
(C) filtering (D) serialization

(iv) Which class provides a mechanism for the server program to listen for clients and establish connections with them:

- (A) ServerSocket (B) Socket
(C) UrlConnection (D) Url
- (v) Name the package containing all the Collection Framework classes:

- (A) java.math (B) java.awt
(C) java.util (D) java.lang

(b) Fill in the blanks:

(anonymous, static, bind, method overriding, accept, method overloading, final, type casting)

(i) The process of converting one data type into another is called

(ii) A symbolic constant in Java is declared using the keyword.

(iii) Defining a method in subclass having the same name and type signature as a method in its superclass is called _____ ,

(iv) The _____ method of ServerSocket class waits until a client connects to the server on the given port.

(v) An inner class that has no name and is used to override method of a class is called as _____ .

Page 1 of 3

S0133 / S2003 CORE JAVA

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(c) Answer in ONE or TWO sentences:

- (i) What is a constructor?
- (ii) Define a class?
- (iii) What is an exception?
- (iv) What is a thread?
- (v) What is meant by an event?

Q. 2 Attempt the following (Any THREE)
(15M)

- (a) What do you understand by tokens? Briefly explain various types of tokens available in Java.
- (b) What is meant by method overloading? Illustrate with a suitable example.
- (c) What is an interface? Explain the syntax of creating an interface. How are interfaces implemented in a class?
- (d) Explain the concept of abstract classes and methods.
- (e) Create a class Circle. Add a constant for storing the value of PI. Add a data member(field) for storing the radius. Add appropriate constructor(s) and methods for calculating the area and circumference of the circle. In another class, write main method to test the Circle class.
- (f) Imagine a publishing company that markets both book and CD version of its work. Create a class Publication that stores the title (a string) and price (a float)

of a publication. From this class, derive two classes: Book which adds pagecount (type int); and CD, which adds playtime (type int) in minutes. Each of these classes should have constructors for initializing their data members and a method for displaying the value of the data members.

Q. 3 Attempt the following (Any THREE)
(15M)

- (a) What is an exception? Explain the exception-handling mechanism in Java.
- (b) What is meant by multithreading? Explain how to create thread using Runnable interface.
- (c) Write a note on FileInputStream class.
- (d) What is the purpose of Socket class? Explain any two constructors and two methods of this class.
- (e) Write a TCP client-server program: the client accepts a number from the user and sends it to the server, the server returns the factorial of that number to the client.
- (f) Write a program to copy the contents of a file data1.txt to a file data2.txt.

Page 2 of 3

S0133 / S2003 CORE JAVA

Q. P. Code: 19831

Q. 4 Attempt the following (Any THREE)
(15)

- (a) Write a note on List interface of Collections Framework.
- (b) What do you understand by type wrappers? Briefly explain any 3 methods of Integer class. Illustrate with suitable examples.
- (c) Explain Border Layout Manager in AWT.
- (d) What is a checkbox? How to create and use a checkbox using AWT.
- (e) Write a program that displays three buttons: Red, Green and Blue. On click of a button, respective colour should be filled in a label.
- (f) Write a program to create a set using Collections Framework. Store names of five countries in the set and then display them.

Q. 5 Attempt the following (Any THREE)
(15)

- (a) What is an array? How is one-dimensional array declared, created and initialized in Java?
- (b) Write a note on Thread class.
- (c) Explain the concept of Member Inner class. Give example to illustrate.
- (d) What is a string? Write a program to accept a string as a command line argument and print its reverse.
- (e) Write a program that accepts an integer, n , from the user, and calculates $100/n$. The program should handle an appropriate exception if value of n is 0.

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