JAVA EXAMINATION

Testing duration: 60 minutes

Required score: 40

Question 1: What is the correct ordering for the import, class and package declarations when found in a single file?

- **A. package, import, class**
- B. class, import, package
- C. import, package, class
- D. package, class, import

Question 2: Which methods can not be legally applied to a string object?

- A. equals(String)
- B. equals(Object)
- C. trim()
- **D. round()**

Question 3: What will be the result of compiling the following code:

```
public class Test {
      public static void main (String args []) {
            int age;
            age = age + 1;
            System.out.println("The age is " + age);
      }
}
```

- A. Compiles and runs with no output
- B. Compiles and runs printing out The age is 1
- C. Compiles but generates a runtime error
- **D. Does not compile**

Question 4: Suppose we try to compile and run the following

```
public class Test{
      public static void main(String arg[]){
            int j;
            for(int i = 10, j = 0; i > j; j++){
                  i = i -1;
            }
      //Statement can go here
      }
}
Which of the following statements about this code are correct?
```

- A. The loop initializer uses the correct form to set value of i and j
- **B. The loop initializer is not legal and code will not compile for that reason**
- C. If we put the following statement after the loop, it would report “i = 5 j = 5”

System.out.println(“i = ” + i + “ j = ” + j);

D. If we put the following statement after the loop, it would report “j = 5”

System.out.println(“ j = ” + j);

Question 5: Which of these is the correct format to use to create the literal char value a?

A. ‘a’
B. "a"
C. new Character(a)
D. \000a

Question 6: What happen when we try to compile and run code containing the following lines?

```
String s = “12345”;
String t = new String(s);
if(s == t then) System.out.println(t + “==” + s);
else System.out.println(t + “!=” + s);
```

A. The compiler objects to the use of == with reference variables in line 3
B. The program compiles an prints “12345=12345”
C. The program compiles an prints “12345!=12345”
D. A runtime exception occurs in line 3

Question 7: What is the legal range of a byte integral type?

A. 0 - 65, 535
B. (–128) – 127
C. (–32,768) – 32,767
D. (–256) – 255

Question 8: What will be the result of compiling the following code:

```
public class Test {
      static int age;
      public static void main (String args []) {
            age = age + 1;
            System.out.println("The age is " + age);
      }
 }
```

A. Compiles and runs with no output
B. Compiles and runs printing out The age is 1
C. Compiles but generates a runtime error
D. Does not compile

Question 9: Which of the following is illegal

A. int i = 32;
B. float f = 45.0;
C. long l = 40;

D. double d = 45.0;

Question 10: Which assignments are illegal?

A. float f = -412;
B. double d = 0x12345678;
C. short s = 10;
D. int other = (int)true;

Question 11: Which of the following represents an octal number?

A. 0x12
B. 32O
C. 032
D. (octal)2

Question 12: Which of the following are acceptable?

A. Object o = new Button("A");
B. Boolean flag = true;
C. Panel p = new Frame();
D. Frame p = new Applet();

Question 13: What is the result of compiling and running the following code:

```
public class Test {
      static int total = 10;
      public static void main (String args []) {
            new Test();
      }
      public Test () {
            System.out.println("In test");
            System.out.println(this);
            int temp = this.total;
            if (temp > 5) {
                System.out.println(temp);
            }
      }
 }
```

A. The class will not compile
B. The compiler reports and error at line 2
C. The compiler reports an error at line 9
D. The value 10 is one of the elements printed to the standard output

Question 14: Which of the following is correct:

A. String temp [] = new String {"j" "a" "z"};
B. String temp [] = { "j " " b" "c"}
C. String temp [] = {"a", "b", "c"}
D. String temp = {"a", "b", "c"}

Question 15: What is the correct declaration of an abstract method that is intended to be public:

A. public abstract void add();
B. public abstract void add() {}
C. public abstract add();
D. public virtual add();

Question 16: Given the following code:

```
  public class Test {
      …
 }
```

Which of the following can be used to define a constructor for this class:

A. public void Test() {…}
B. public Test() {…}
C. public static Test() {…}
D. public static void Test() {…}

Question 17: Which of the following are not acceptable to the Java compiler:

A. if (2 == 3) System.out.println("Hi");
B. if (2 = 3) System.out.println("Hi");
C. if (2 != 3) System.out.println("Hi");
D. if (aString.equals("hello")) System.out.println("Hi");

Question 18: Assuming a method contains code which may raise an Exception (but not a RuntimeException) what is the correct way for a method to indicate that it does not handle that exception

A. throw Exception
B. new Exception
C. throws Exception
D. Don't need to specify anything

Question 19: What is the result of executing the following code, using the parameters 4 and 0

```
public void divide(int a, int b) {
      try {
            int c = a / b;
      } catch (Exception e) {
            System.out.print("Exception ");
      } finally {
            System.out.println("Finally");
 }
```

A. Prints out: Exception Finally
B. Prints out: Finally
C. Prints out: Exception
D. No output

Question 20: Given the following classes defined in separate files:

```
class Vehicle {
    public void drive() {
        System.out.println("Vehicle: drive");
    }
}

class Car extends Vehicle {
    public void drive() {
        System.out.println("Car: drive");
    }
}

public class Test {
    public static void main (String args []) {
        Vehicle v;
        Car c;
        v = new Vehicle();
        c = new Car();
        v.drive();
        c.drive();
        v = c;
        v.drive();
    }
}
```

What will be the effect of compiling and running this class Test?

A. Generates a Compiler error on the statement v= c;
B. Generates runtime error on the statement v= c;
C. Prints out:
    Vehicle: drive
    Car: drive
    Car: drive
D. Prints out:
    Vehicle: drive
    Car: drive
    Vehicle: drive

Question 21: Where in a constructor, can you place a call to a constructor defined in the super class?

A. Anywhere
B. The first statement in the constructor
C. The last statement in the constructor
D. You can't call super in a constructor

Question 22: What class must an inner class extend:

A. The top level class
B. The Object class
C. Any class or interface
D. It must extend an interface

Question 23: In the following code which is the earliest statement, where the object originally held in employee, may be garbage collected:

```
public class Test {
 public static void main (String args []) {
   Employee e = new Employee("Bob", 48);
   e.calculatePay();
   System.out.println(e.printDetails());
   e = null;
   e = new Employee("Denise", 36);
   e.calculatePay();
   System.out.println(e.printDetails());
 }
}
```

A. Line 10
B. Line 11
C. Line 7
D. Line 8

Question 24: Which of the following methods are not defined on the Graphics class:

A. drawLine(int, int, int, int)
B. drawImage(Image, int, int, ImageObserver)
C. drawString(String, int, int)
D. setLayout(Object);

Question 25: Which of the following layout managers honours the preferred size of a component:

A. CardLayout
B. FlowLayout
C. BorderLayout
D. GridLayout

Question 26: Given the following code what is the effect of a being 5:

```
public class Test {
     public void add(int a) {
         loop: for (int i = 1; i < 3; i++){
                 for (int j = 1; j < 3; j++) {
                     if (a == 5) {
                         break loop;
                     }
                     System.out.println(i * j);
                 }
         }
     }
}
```

A. Generate a runtime error
B. Throw an out of bounds exception
C. Print the values: 1, 2, 2, 4

D. Produces no output

Question 27: What is the effect of issuing a wait() method on an object

A. If a notify() method has already been sent to that object then it has no effect
B. The object issuing the call to wait() will halt until another object sends a notify() or notifyAll() method
C. An exception will be raised
D. The object issuing the call to wait() will be automatically synchronized with any other objects using the receiving object.

Question 28: The layout of a container can be altered using which of the following methods:

A. setLayout(aLayoutManager);
B. addLayout(aLayoutManager);
C. layout(aLayoutManager);
D. setLayoutManager(aLayoutManager);

Question 29: Using a FlowLayout manager, which is the correct way to add elements to a container:

A. add(component);
B. add("Center", component);
C. add(x, y, component);
D. set(component);

Question 30: Given that a Button can generate an ActionEvent which listener would you expect to have to implement, in a class which would handle this event?

A. FocusListener
B. ComponentListener
C. ItemListener
D. ActionListener

Question 31: Assuming we have a class which implements the ActionListener interface, which method should be used to register this with a Button?

A. addListener(*);
B. addActionListener(*);
C. addButtonListener(*);
D. setListener(*);

Question 32: In order to cause the paint(Graphics) method to execute, which of the following is the most appropriate method to call:

A. paint()
B. repaint()
C. paint(Graphics)
D. update(Graphics)

Question 33: What Graphics methods will draw the outline of a square?

A. drawRect()
B. fillRect()

C. drawRectangle()
D. drawSquare()

Question 34: The setForeground() and setBackground() methods are defined in class

A. Graphics
B. Container
C. Component
D. Object

Question 35: Which of the following illustrates the correct way to pass a parameter into an applet:

A. <applet code=Test.class age=33 width=100 height=100>
B. <param name=age value=33>
C. <applet code=Test.class name=age value=33 width=100 height=100>
D. <applet Test 33>

Question 36: Which of the following is incorrect when creates InputStreamReader?

A. new InputStreamReader(new FileInputStream("data"));
B. new InputStreamReader(new FileInputStream("data"),"UTF8");
C. new InputStreamReader(new BufferedReader("data"));
D. new InputStreamReader(System.in);

Question 37: What is the permanent effect on the file system of writing data to a new FileWriter("report"), given the file report already exists;?

A. The data is appended to the file
B. An exception is raised as the file already exists
C. The data is written to random locations within the file
D. The file is replaced with a new file

Question 38: What is the effect of adding the sixth element to a vector created in the following manner:

```
new Vector(5, 10);
```

A. An IndexOutOfBounds exception is raised.
B. The vector grows in size to a capacity of 10 elements
C. The vector grows in size to a capacity of 15 elements
D. Nothing, the vector will have grown when the fifth element was added

Question 39: The Vector class provides storage for object references in the order of addition and automatically epands as needed. Which of the following classes is closed in function to the Vector class?

A. java.util.ArrayList
B. java.util.Hashtable
C. java.util.LinkedList
D. java.util.List

Question 40: What is the result of executing the following code when the value of x is 2:

```
switch (x) {
     case 1:
         System.out.println(1);
     case 2:
     case 3:
         System.out.println(3);
     case 4:
         System.out.println(4);
 }
```

A. Nothing is printed out
B. The value 3 is printed out
C. The values 3 and 4 are printed out
D. The values 1, 3 and 4 are printed out

Question 41: Consider the following example:

```
class First {
    public First (String s) {
       System.out.println(s);
    }
 }
 public class Second extends First {
    public static void main(String args []) {
       new Second();
    }
 }
```

What is the result of compiling and running the Second class?

A. Nothing happens
B. An instance of the class Second is created
C. An exception is raised at runtime stating that there is no null parameter constructor in class First.
D. The class second will not compile as there is no null parameter constructor in the class First

Question 42: What is the result of executing the following fragment of code:

```
 boolean flag = false;
 if (flag = true) {
    System.out.println("true");
 } else {
    System.out.println("false");
 }
```

A. true is printed to standard out
B. false is printed to standard out
C. An exception is raised
D. Nothing happens

Question 43: Consider the following classes:

```
public class Test {
    public static void test() {
       this.print();
    }
    public static void print() {
       System.out.println("Test");
    }
    public static void main(String args []) {
       test();
    }
 }
```

What is the result of compiling and running this class?

A. The string Test is printed to the standard out.
B. A runtime exception is raised stating that an object has not been created.
C. An exception is raised stating that the method test cannot be found.
D. The class fails to compile stating that the variable this is undefined.

Question 44: Examine the following class definition:

```
public class Test {
    public static void test() {
       print();
    }
    public static void print() {
       System.out.println("Test");
    }
    public void print() {
       System.out.println("Another Test");
    }
 }
```

What is the result of compiling this class:

A. A successful compilation.
B. A warning stating that the class has no main method.
C. An error stating that there is a duplicated method.
D. An error stating that the method test() will call one or other of the print() methods.

Question 45: Given the following sequence of Java statements

```
 StringBuffer sb = new StringBuffer("abc");
 String s = new String("abc");
 sb.append("def");
 s.append("def");
 sb.insert(1, "zzz");
 s.trim();
```

Which of the following statements are true:

A. The compiler would generate an error for line 1.
B. The compiler would generate an error for line 2.
C. The compiler would generate an error for line 3.
D. The compiler would generate an error for line 4.

Question 46: What is the result of executing the following Java class:

```
import java.awt.*;
 public class FrameTest extends Frame {
    public FrameTest() {
       add (new Button("First"));
       add (new Button("Second"));
       add (new Button("Third"));
       pack();
       setVisible(true);
    }
    public static void main(String args []) {
       new FrameTest();
    }
 }
```

What is the result:

A. A runtime exception is generated (no layout manager specified).
B. Only the "third" button is displayed.
C. Only the "first" button is displayed.
D. Only the "second" button is displayed.

Question 47: Which of the following are legal ways to construct a RandomAccessFile:

A. RandomAccessFile("data", "r");
B. RandomAccessFile("r", "data");
C. RandomAccessFile("data", "read");
D. RandomAccessFile("read", "data");

Question 48: If you run the following code on a on a PC from the directory c:\source:

```
import java.io.*;
class Path {
   public static void main(String[] args) throws Exception
   {
      File file = new File("Ran.test");
     System.out.println(file.getAbsolutePath());
   }
}
```

A. Ran.test
B. source\Ran.test
C. c:\source\Ran.test
D. c:\source

Question 49: Carefully examine the following code:

```
public class StaticTest {
    static {
       System.out.println("Hi there");
    }
    public void print() {
       System.out.println("Hello");
    }
    public static void main(String args []) {
       StaticTest st1 = new StaticTest();
       st1.print();
       StaticTest st2 = new StaticTest();
       st2.print();
    }
 }
```

When will the string "Hi there" be printed?

A. Never.
B. Each time a new instance is created.
C. Once when the class is first loaded into the Java virtual machine.
D. Only when the static method is called explicitly.

Question 50: Question 3: What is the proper way of defining a class named Key so that it cannot be subclassed?

A. abstract final class Key { }
B. native class Key { }
C. class Key {final;}
D. final class Key { }

Question 51: What is the name of the interface that can be used to define a class that can execute within its own thread?

A. Runnable
B. Run
C. Thread
D. Executable

Question 52: What is the name of the method used to schedule a thread for execution?

A. init();
B. start();
C. run();
D. resume();

Question 53: All methods may cause a thread to stop executing. Except?

A. sleep();
B. yield();
C. wait();
D. notify();

Question 54: Question 46: If you supply a target object when you create a new Thread, as in:

```
Thread t = new Thread(targetObject);

What test of instanceof does targetObject have to pass for
this to be legal?
```

A. targetObject instanceof Thread
B. targetObject instanceof Object
C. targetObject instanceof Runnable
D. targetObject instanceof String

Question 55: What is the result of compiling and executing the following Java class:

```
public class ThreadTest extends Thread {
     public void run() {
       System.out.println("In run");
       suspend();
       resume();
       System.out.println("Leaving run");
     }

     public static void main(String args []) {
       (new ThreadTest()).start();
     }
 }
```

A. Compilation will fail in the method main.
B. Compilation will fail in the method run.
C. The string "In run" will be printed to standard out.
D. Both strings will be printed to standard out.

Question 56: What is the result of compiling and executing the following Java class:

```
import java.io.*;
class MyClass{
}
public class SaveState {
    public static void main(String argv[]) throws
IOException,ClassNotFoundException{
       new SaveState();
    }

    SaveState()throws IOException{
       MyClass mc = new MyClass();
       FileOutputStream out = new FileOutputStream("state.ob");
       ObjectOutputStream s = new ObjectOutputStream(out);
       s.writeObject(mc);
    }
}
```

A. Compile time error, ObjectOutputStream has no writeObject method

B. Compilation and no output at runtime

C. Compilation but exception at runtime

D. Compilation error, MyClass has no fields or methods