Exam

Name_____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

1) A method must declare to throw _____. 1) _____
A) checked exceptions B) Error
C) unchecked exceptions D) RuntimeException

2) What is displayed on the console when running the following program? 2) _____

```
class Test {
  public static void main(String[ ] args) {
    try {
      System.out.println("Welcome to Java");
      int i = 0;
      double y = 2.0 / i;
      System.out.println("Welcome to HTML");
    }
    finally {
      System.out.println("The finally clause is executed");
    }
  }
}
```

A) The program displays three lines: Welcome to Java, Welcome to HTML, The finally clause is executed.
B) Welcome to Java followed by The finally clause is executed in the next line.
C) Welcome to Java.
D) None of the above.

3) A Java exception is an instance of _____. 3) _____
A) Error
B) Throwable
C) NumberFormatException
D) Exception
E) RuntimeException

4) Which of the following statements are true? (Choose all that apply.) 4) _____
A) You use the keyword throws to declare exceptions in the method heading.
B) If a checked exception occurs in a method, it must be either caught or declared to be thrown from the method.
C) To throw an exception, use the key word throw.
D) A method may declare to throw multiple exceptions.

5) What is displayed on the console when running the following program? 5) _____

```
class Test {
  public static void main (String[ ] args) {
    try {
      System.out.println("Welcome to Java");
    }
    finally {
      System.out.println("The finally clause is executed");
    }
  }
}
```

A) Welcome to Java followed by The finally clause is executed in the next line
B) The finally clause is executed
C) Welcome to Java
D) None of the above

6) What is displayed on the console when running the following program? 6) _____

```
class Test {
  public static void main(String[ ] args) {
    try {
      System.out.println("Welcome to Java");
      int i = 0;
      int y = 2/i;
      System.out.println("Welcome to Java");
    }
    catch (RuntimeException ex) {
      System.out.println("Welcome to Java");
    }
    finally {
      System.out.println("End of the block");
    }

    System.out.println("End of the block");
  }
}
```

A) The program displays Welcome to Java two times followed by End of the block two times.
B) The program displays Welcome to Java two times followed by End of the block.
C) The program displays Welcome to Java three times followed by End of the block.
D) You cannot catch RuntimeException errors.

7) What exception type does the following program throw? 7) _____

```
public class Test {
  public static void main(String[ ] args) {
    int[ ] list = new int[5];
    System.out.println(list[5]);
  }
}
```

A) No exception
B) ClassCastException
C) ArrayIndexOutOfBoundsException
D) ArithmeticException
E) StringIndexOutOfBoundsException

8) Analyze the following program. 8) _____

```
class Test {
  public static void main(String[ ] args) {
    try {
      String s = "5.6";
      Integer.parseInt(s); // Cause a NumberFormatException

      int i = 0;
      int y = 2 / i;
      System.out.println("Welcome to Java");
    }
    catch (Exception ex) {
      System.out.println(ex);
    }
  }
}
```

A) The program has a compilation error.
B) An exception is raised due to Integer.parseInt(s);
C) The program compiles and runs without exceptions.
D) An exception is raised due to 2 / i;

9) What is displayed on the console when running the following program? 9) _____

```
class Test {
  public static void main(String[ ] args) {
    try {
      System.out.println("Welcome to Java");
      int i = 0;
      int y = 2/i;
      System.out.println("Welcome to Java");
    }
    catch (RuntimeException ex) {
      System.out.println("Welcome to Java");
    }
    finally {
      System.out.println("End of the block");
    }
  }
}
```

A) The program displays Welcome to Java two times followed by End of the block.
B) The program displays Welcome to Java three times.
C) The program displays Welcome to Java three times followed by End of the block.
D) The program displays Welcome to Java two times.

10) What is displayed on the console when running the following program? 10) _____

```
class Test {
  public static void main(String[ ] args) {
    try {
      System.out.println("Welcome to Java");
      int i = 0;
      int y = 2/i;
      System.out.println("Welcome to HTML");
    }
    finally {
      System.out.println("The finally clause is executed");
    }
  }
}
```

A) Welcome to Java.
B) The program displays three lines: Welcome to Java, Welcome to HTML, The finally clause is executed.
C) Welcome to Java followed by The finally clause is executed in the next line.
D) None of the above.

11) What exception type does the following program throw? 11) _____

```
public class Test {
  public static void main(String[ ] args) {
    Object o = null;
    System.out.println(o.toString());
  }
}
```

A) ArithmeticException
B) NullPointerException
C) StringIndexOutOfBoundsException
D) ClassCastException
E) ArrayIndexOutOfBoundsException

12) What is displayed on the console when running the following program? 12) _____

```
class Test {
  public static void main(String[ ] args) {
    try {
      method();
      System.out.println("After the method call");
    }
    catch (RuntimeException ex) {
      System.out.println("RuntimeException");
    }
    catch (Exception ex) {
      System.out.println("Exception");
    }
  }

  static void method() throws Exception {
    try {
      String s = "5.6";
      Integer.parseInt(s); // Cause a NumberFormatException

      int i = 0;
      int y = 2 / i;
      System.out.println("Welcome to Java");
    }
    catch (RuntimeException ex) {
      System.out.println("RuntimeException");
    }
    catch (Exception ex) {
      System.out.println("Exception");
    }
  }
}
```

A) The program displays Exception twice.
B) The program has a compilation error.
C) The program displays RuntimeException twice.
D) The program displays Exception followed by RuntimeException.
E) The program displays RuntimeException followed by After the method call.

13) Which of the following is not an advantage of Java exception handling? 13) _____
A) Exception handling makes it possible for the caller's caller to handle the exception.
B) Exception handling improves performance.
C) Exception handling simplifies programming because the error-reporting and error-handling code can be placed at the catch block.
D) Java separates exception handling from normal processing tasks.

14) Which of the following statements are true? (Choose all that apply.) 14) _____
A) A font determines the font metrics.
B) You can obtain a FontMetrics from a Font object using the getFontMetrics() method.
C) You can create a FontMetric using new FontMetrics().
D) You can obtain the leading, ascent, descent, and height for a font from a FontMetrics object.

15) Which of the following statements are true? (Choose all that apply.) 15) _____
A) Invoking repaint() causes paintComponent to be invoked by the JVM.
B) You may create a Graphics object using new Graphics().
C) The paintComponent method is automatically invoked by the JVM. You should never invoke it directly.
D) Whenever a GUI component is displayed, its Graphics object is automatically created.

16) The coordinate of the upper-left corner of a frame is _____. 16) _____
A) (0, 0) B) (25, 25) C) (10, 10) D) (100, 100)

17) Given a Graphics object g, to draw a filled oval with width 20 and height 30 centered at (50, 50), you use _____. 17) _____
A) g.fillOval(30, 30, 20, 30)
B) g.fillOval(40, 35, 20, 30)
C) g.fillOval(50, 50, 40, 30)
D) g.fillOval(30, 30, 40, 30)
E) g.fillOval(50, 50, 20, 30)

18) Given a Graphics object g, to draw a polygon to connect points (3, 3), (4, 10), (10, 20), (2, 100), you use _____. 18) _____
A) g.drawPolyline({3, 4, 10, 2}, {3, 10, 20, 100}, 4)
B) g.drawPolyline(new int[ ]{3, 4, 10, 2}, new int[ ]{3, 10, 20, 100}, 4)
C) g.drawPolygon(new int[ ]{3, 4, 10, 2}, new int[ ]{3, 10, 20, 100}, 4)
D) g.drawPolygon({3, 4, 10, 2}, {3, 10, 20, 100}, 4)

19) Which of the following statements are correct? (Choose all that apply.) 19) _____
A) You can set an image on a label, but the image is not resizable.
B) You can draw an image on a GUI component using the drawImage method in the Graphics object. This image is resizable.
C) You can set an image on a button, but the image is not resizable.

20) Given a Graphics object g, to draw a filled arc with radius 20 centered at (50, 50) and start angle 0 and spanning angle 90, you use _____. 20) _____
A) g.fillArc(50, 50, 20, 20, 0, 90)
B) g.fillArc(30, 30, 40, 40, 0, Math.toRadian(90))
C) g.fillArc(50, 50, 40, 40, 0, Math.toRadian(90))
D) g.fillArc(50, 50, 40, 40, 0, 90)
E) g.fillArc(30, 30, 40, 40, 0, 90)

21) Which of the following statements are true? (Choose all that apply.) 21) _____
A) Each GUI component contains a Graphics object that can be obtained using getGraphics() method.
B) If a GUI component is not visible, getGraphics() returns null.
C) Once a GUI component is visible, getGraphics() returns the object.
D) The Graphics object is automatically created for each visible GUI component.

22) To create an Image object from an ImageIcon object imageIcon, use the _____ method. 22) _____
A) imageIcon.returnImage() B) imageIcon.getImage()
C) imageIcon.image() D) imageIcon.setImage()

23) To append data to an existing file, use _____ to construct a FileOutputStream for file out.dat. 23) _____

A) new FileOutputStream("out.dat", false)
B) new FileOutputStream(true, "out.dat")
C) new FileOutputStream("out.dat", true)
D) new FileOutputStream("out.dat")

24) What does the following code do? 24) _____

```
FileInputStream fis = new FileInputStream("test.dat");
```

A) It creates a new file named test.dat if it does not exist and opens the file so you can write to it and read from it.
B) It creates a FileInputStream for test.dat if test.dat exists.
C) It creates a new file named test.dat if it does not exist and opens the file so you can write to it.
D) It creates a new file named test.dat regardless of whether it exists or not and opens the file so you can write to it.
E) It creates a new file named test.dat regardless of whether it exists or not and opens the file so you can write to it and read from it.

25) To create a file, you can use _____. 25) _____

A) FileWriter
B) FileOutputStream
C) RandomAccessFile
D) All of the above.

26) What happens if the file test.dat does not exist when you attempt to compile and run the following code? 26) _____

```
import java.io.*;

class Test  {
  public static void main(String[ ] args) {
    try {
      RandomAccessFile raf =
        new RandomAccessFile("test.dat", "r");
      int i = raf.readInt();
    }
    catch(IOException ex) {
      System.out.println("IO exception");
    }
  }
}
```

A) The program does not compile because raf is not created correctly.
B) The program compiles and runs fine, but nothing is displayed on the console.
C) The program does not compile because readInt() is not implemented in RandomAccessFile.
D) The program compiles, but throws IOException because the file test.dat doesn't exist. The program displays IO exception.

27) Which of the following statements is not true? 27) _____

A) The methods in an object are serialized.
B) A transient variable is not serialized.
C) A static variable is not serialized.
D) An object must be an instance of Serializable or Externalizable for it to be serialized.
E) All of the above are true.

28) Which of the following statements are true? (Choose all that apply.) 28) _____

A) All methods in FileInputStream/FileOutputStream are inherited from InputStream/OutputStream.
B) You can create a FileInputStream/FileOutputStream from a File object or a file name using FileInputStream/FileOutputStream constructors.
C) The return value -1 from the read() method signifies the end of file.
D) A java.io.FileNotFoundException would occur if you attempt to create a FileOutputStream with a nonexistent file.
E) A java.io.FileNotFoundException would occur if you attempt to create a FileInputStream with a nonexistent file.

29) An instance of _____ are unchecked exceptions. (Choose all that apply.) 29) _____

A) Throwable
B) RuntimeException
C) Exception
D) Error
E) NumberFormatException

30) An instance of _____ describes the errors caused by your program and external circumstances. These errors can be caught and handled by your program. 30) _____

A) Throwable
B) Exception
C) RuntimeException
D) Error
E) NumberFormatException

31) Analyze the following code: 31) _____

```
class Test {
  public static void main(String[ ] args) {
    try {
      String s = "5.6";
      Integer.parseInt(s); // Cause a NumberFormatException
      int i = 0;
      int y = 2 / i;
    }
    catch (Exception ex) {
      System.out.println("NumberFormatException");
    }
    catch (RuntimeException ex) {
      System.out.println("RuntimeException");
    }
  }
}
```

A) The program has a compilation error.
B) The program displays NumberFormatException.
C) The program displays NumberFormatException followed by RuntimeException.
D) The program displays RuntimeException.

32) Analyze the following code: 32) _____

```
class Test {
  public static void main(String[ ] args)
    throws MyException {
    System.out.println("Welcome to Java");
  }
}

class MyException extends Error {
}
```

A) You declared an exception in the main method, but you did not throw it.
B) You cannot declare an exception in the main method.
C) The program has a compilation error.
D) You should not declare a class that extends Error, because Error raises a fatal error that terminates the program.

33) Given a Graphics object g, to draw an outline of a rectangle of width 20 and height 50 with the upper-left corner at (20, 20), you use _____. 33) _____

A) g.drawRect(20, 20, 20, 50)
B) g.drawRectFill(20, 50, 20, 20)
C) g.drawRectFill(20, 20, 20, 50)
D) g.drawRect(20, 50, 20, 20)

34) Analyze the following code. 34) _____

```
import java.awt.*;
import java.awt.event.*;
import javax.swing.*;

public class Test1 extends JFrame {
  public Test1() {
    add(new MyCanvas());
  }

  public static void main(String[ ] args) {
    JFrame frame = new Test1();
    frame.setSize(300, 300);
    frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
    frame.setVisible(true);
  }
}

class MyCanvas extends JPanel {
  private String message;

  public void setMessage(String message) {
    this.message = message;
  }

  public void paintComponent(Graphics g) {
    super.paintComponent(g);

    g.drawString(message, 20, 20);
  }
}
```

A) The program has a compile error because new Test1() is assigned to frame.
B) The program has a NullPointerException since message is null when g.drawString(message, 20, 20) is executed.
C) The program runs fine and displays nothing since you have not set a string value.
D) The program would display Welcome to Java! if you replace new MyCanvas() by new MyCanvas("Welcome to Java!").

35) After the following program is finished, how many bytes are written to the file t.dat? 35) _____

```
import java.io.*;

public class Test {
  public static void main(String[ ] args) throws IOException {
    DataOutputStream output = new DataOutputStream(
      new FileOutputStream("t.dat"));
    output.writeUTFString("ABCD");
    output.close();
  }
}
```

A) 10 bytes. B) 8 bytes. C) 4 bytes. D) 6 bytes. E) 2 bytes.

36) After the following program is finished, how many bytes are written to the file t.dat? 36) _____

```
import java.io.*;

public class Test {
  public static void main(String[ ] args) throws IOException {
    DataOutputStream output = new DataOutputStream(
      new FileOutputStream("t.dat"));
    output.writeChar('A');
    output.close();
  }
}
```

A) 8 bytes. B) 2 bytes.
C) 4 bytes. D) none of the above.

37) What is displayed on the console when running the following program? 37) _____

```
class Test {
  public static void main (String[ ] args) {
    try {
      System.out.println("Welcome to Java");
      return;
    }
    finally {
      System.out.println("The finally clause is executed");
    }
  }
}
```

A) The finally clause is executed
B) Welcome to Java followed by The finally clause is executed in the next line
C) Welcome to Java
D) None of the above

38) You can draw graphics on any GUI components. 38) _____
A) true B) false

39) After the following program is finished, how many bytes are written to the file t.dat? 39) _____

```
import java.io.*;

public class Test {
  public static void main(String[ ] args) throws IOException {
    DataOutputStream output = new DataOutputStream(
      new FileOutputStream("t.dat"));
    output.writeShort(1234);
    output.writeShort(5678);
    output.close();
  }
}
```

A) 16 bytes. B) 2 bytes. C) 8 bytes. D) 4 bytes.

40) What is displayed on the console when running the following program? 40) _____

```
class Test {
  public static void main(String[ ] args) {
    try {
      method();
      System.out.println("After the method call");
    }
    catch (RuntimeException ex) {
      System.out.println("RuntimeException");
    }
    catch (Exception ex) {
      System.out.println("Exception");
    }
  }

  static void method() throws Exception {
    try {
      String s = "5.6";
      Integer.parseInt(s); // Cause a NumberFormatException

      int i = 0;
      int y = 2 / i;
      System.out.println("Welcome to Java");
    }
    catch (NumberFormatException ex) {
      System.out.println("NumberFormatException");
      throw ex;
    }
    catch (RuntimeException ex) {
      System.out.println("RuntimeException");
    }
  }
}
```

A) The program displays NumberFormatException followed by RuntimeException.
B) The program displays NumberFormatException twice.
C) The program has a compilation error.
D) The program displays NumberFormatException followed by After the method call.