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

1) _______ can generate mouse events. (choose all that apply)  
   A) JButton  
   B) JLabel  
   C) JPanel  
   D) JTextField  

2) The interface _______ should be implemented to listen for a button action event.  
   A) ContainerListener  
   B) MouseListener  
   C) WindowListener  
   D) FocusListener  
   E) ActionListener

3) Analyze the following code.

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

public class Test extends JFrame implements ActionListener {
    public Test() {
        JButton jbtOK = new JButton("OK");
        getContentPane().add(jbtOK);
    }

    public void actionPerformed(ActionEvent e) {
        System.out.println("The OK button is clicked");
    }

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

A) The message "The OK button is clicked" is displayed when you click the OK button.  
B) The program has a syntax error because no listeners are registered with jbtOK.  
C) The program has a runtime error because no listeners are registered with jbtOK.  
D) The actionPerformed method is not executed when you click the OK button, because no instance of Test is registered with jbtOK.  
E) None of the above.
4) To listen to mouse clicked events, the listener must implement the ________ interface or extend the ________ adapter.
   A) MouseMotionListener/MouseMotionAdapter
   B) WindowListener/WindowAdapter
   C) MouseListener/MouseAdapter
   D) ComponentListener/ComponentAdapter

5) To enable a component to listen to keyboard events, you need to ________.
   A) Invoke the component’s requestFocus method to set focus on this component
   B) Implement the KeyListener interface for the component
   C) Override the isFocusTraversable method defined in the Component class to return true
   D) All of the above.

6) The listener’s ________ method is invoked after a mouse button is pressed (but not released yet).
   A) public void mouseExited(MouseEvent e)
   B) public void mouseEntered(MouseEvent e)
   C) public void mousePressed(MouseEvent e)
   D) public void mouseReleased(MouseEvent e)
   E) public void mouseClicked(MouseEvent e)

7) The handler (e.g., actionPerformed) is a method in ________.
   A) a source object
   B) the EventObject class
   C) a listener object
   D) the Object class
   E) both source and listener object

8) Which of the following statements are true? (choose all that apply)
   A) A listener may listen for multiple sources.
   B) The listener object’s class must implement the corresponding event-listener interface.
   C) Each event class has a corresponding listener interface.
   D) The listener object must be registered by the source object.
   E) A source may have multiple listeners.

9) To detect whether the right button of the mouse is pressed, you use the method ________ in the MouseEvent object evt.
   A) evt.isControlDown()
   B) evt.isMetaDown()
   C) evt.isShiftDown()
   D) evt.isAltDown()
10) Which of the following statements are true? (choose all that apply)
   A) An anonymous inner class is compiled into a class named OuterClassName$n.class.
   B) An anonymous inner class must always extend a superclass or implement an interface, but it cannot have an explicit extends or implements clause.
   C) An anonymous inner class must implement all the abstract methods in the superclass or in the interface.
   D) An anonymous inner class always uses the no-arg constructor from its superclass to create an instance. If an anonymous inner class implements an interface, the constructor is Object().
   E) An anonymous inner class is an inner class without a name.

11) Pressing a button generates an event.
    A) ActionEvent
    B) MouseEvent
    C) MouseMotionEvent
    D) ContainerEvent
    E) ItemEvent

12) Suppose A is an inner class in Test. A is compiled into a file named
    A) Test&A.class
    B) Test$A.class
    C) A$Test.class
    D) A.class

13) You can create an instance of ActionListener using new ActionListener().
    A) true  B) false

14) Which statement is true about a non-static inner class?
    A) It can access private instance variables in the enclosing object.
    B) It must implement an interface.
    C) It can only be instantiated in the enclosing class.
    D) It must be final if it is declared in a method scope.
    E) It is accessible from any other class.

15) What is the value of evt.getKeyCode() or evt.getChar() for the keyTyped() events?
    A) The Unicode code of the character
    B) The ASCII code of the character
    C) A character
    D) VK_UNDEFINED

16) Every event object has the method.
    A) getTimeStamp()
    B) getKeyChar()
    C) getActionCode()
    D) getWhen()
    E) getSource()

17) Which of the following statements are true? (choose all that apply)
    A) Every GUI component can generate MouseEvent, KeyEvent, FocusEvent, and ComponentEvent.
    B) A component on which an event is generated is called the source object.
    C) If a component can generate an event, any subclass of the component can generate the same type of event.
    D) All the event classes are subclasses of EventObject.
18) Which of the following statements are true? (choose all that apply)
   A) An inner class supports the work of its containing outer class and is compiled into a class named OuterClassName$InnerClassName.class.
   B) Inner classes can make programs simple and concise.
   C) An inner class can be declared static. A static inner class can be accessed using the outer class name. A static inner class cannot access nonstatic members of the outer class.
   D) An inner class can be declared public or private subject to the same visibility rules applied to a member of the class.

19) To listen to keyboard actions, the listener must implement the _______ interface or extend the _______ class.
   A) MouseListener/MouseAdapter
   B) KeyListener/KeyAdapter
   C) WindowListener/WindowAdapter
   D) ComponentListener/ComponentAdapter

20) The getKeyCode() method of the KeyEvent returns _______.
   A) a character
   B) the ASCII code of the character
   C) the Unicode code of the character
   D) None of the above.

21) _______ checks whether the JCheckBox jchk is selected.
   A) jchk.select()
   B) jchk.getSelected()
   C) jchk.selected()
   D) jchk.isSelected()

22) How many items can be added into a JComboBox object?
   A) Unlimited
   B) 0
   C) 2
   D) 1

23) Clicking a JComboBox object always generates _______ events. (choose all that apply)
   A) MouseEvent
   B) ItemEvent
   C) KeyEvent
   D) WindowEvent
   E) ActionEvent

24) The method _______ creates a ImageIcon for file c:\image\us.gif.
   A) new ImageIcon("c:\image\us.gif");
   B) new Icon("c:\image\us.gif");
   C) new ImageIcon("c:\image\us.gif");
   D) new Icon("c:\image\us.gif");

25) You can change the caption of a label.
   A) true
   B) false

26) Clicking a JComboBox object generates an ItemEvent event,
   A) if an item is selected.
   B) if a new item is selected.

27) Clicking a JList object generates _______ events.
   A) ActionEvent and ContainerEvent
   B) ItemEvent and ComponentEvent
   C) ActionEvent and ItemEvent
   D) ComponentEvent and ContainerEvent
28) The method ________ gets the text (or caption) of the button jbt.
   A) jbt.findText()   B) jbt.text()
   C) jbt.retrieveText().   D) jbt.getText()

29) The method ________ specifies that the text is placed on the right of the icon in the button jbt.
   A) jbt.setHorizontalTextPosition(JButton.LEFT)
   B) jbt.setHorizontalTextPosition(JButton.RIGHT)
   C) jbt.setVerticalTextPosition(JButton.LEFT)
   D) jbt.setHorizontalAlignment(JButton.RIGHT)
   E) jbt.setHorizontalAlignment(JButton.LEFT)

30) ________ can be used to enter or display a string.
   A) A text field
   B) A button
   C) A radio button
   D) A check box
   E) A label

31) The method ________ gets the text (or caption) of the label jlbl.
   A) jlbl.text()   B) jlbl.findText()
   C) jlbl.retrieveText().   D) jlbl.getText()

32) Which of the following are valid methods on the button jbt? (choose all that apply)
   A) jbt.setMnemonic('A');   B) jbt.setIconTextGap(50);
   C) jbt.setMnemonic("A");   D) jbt.setTextGap(50);

33) You can add a JRadioButton object into a ButtonGroup object.
   A) true   B) false

34) Both the foreground color and background color of a UI component can be changed to a new color.
   A) true   B) false

35) The method ________ specifies that the text and icon are horizontally aligned to the right in the label jlbl.
   A) jlbl.setHorizontalAlignment(JButton.RIGHT)
   B) jlbl.setHorizontalTextPosition(JButton.RIGHT)
   C) jlbl.setHorizontalTextPosition(JButton.LEFT)
   D) jlbl.setVerticalTextPosition(JButton.LEFT)
   E) jlbl.setHorizontalAlignment(JButton.LEFT)

36) The ________ method is executed when the page becomes inactive.
   A) stop()   B) destroy()   C) init()   D) start()

37) The return type of init(), start(), stop(), and destroy() is void.
   A) true   B) false
38) The method that executes immediately after the init() method in an applet is ________.
   A) run()  B) stop()  C) destroy()  D) start()  38)

39) The ________ is a special file that contains information about the files packaged in a JAR file.
   A) manifest file  B) class file  C) source file  D) text file  39)

40) You can pass HTML parameters to an applet.
    A) true  B) false  40)

41) To create a URL for an image file located in the same directory with the class, use (choose all that apply)
   A) Object metaObject = this.getClass(); URL url = metaObject.getResource(imageFilenameString);
   B) Class metaObject = this.getResource(imageFilenameString);
   C) URL url = this.getClass().getResource(imageFilenameString);
   D) Class metaObject = this.getClass(); URL url = metaObject.getResource(imageFilenameString);  41)

42) If you try to retrieve an HTML parameter that is not defined in the HTML page, what will happen?
    A) You will get a syntax error.
    B) Your program will run with an empty string in the parameter's value.
    C) You will get a runtime error.
    D) Your program will run with the parameter's value null.  42)

43) Which of the following statements are true? (choose all that apply)
    A) A URL object may be created using the new URL(urlString) constructor.
    B) You can create a URL object for any public accessible resource on the Internet.
    C) A URL object may be returned using the getSource method on a meta object (instance of java.lang.Class).
    D) You can create a URL object for a local file.  43)

44) If your applet does not have the init() method, which of the following will happen?
    A) Your program will not compile.
    B) Your program will compile, but not execute.
    C) You must have a main method.
    D) Your program will run just fine since the init() method is defined in the Applet class.  44)

45) An applet is declared by extending ________. (choose all that apply)
    A) JFrame  B) JApplet  C) JPanel  D) Applet  45)

46) A main() method is required to run an applet.
    A) true  B) false  46)

47) Which of the classes are in the java.lang package? (choose all that apply)
    A) IOException  B) RuntimeException
    C) Throwable  D) Exception  47)
48) What is displayed on the console when running the following program?

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

49) When an Error-type exception occurs, the GUI application may continue to run.
A) true  B) false

50) What exception type does the following program throw?

```java
public class Test {
    public static void main(String[] args) {
        System.out.println(1 / 0);
    }
}
```

A) ClassCastException
B) No exception
C) StringIndexOutOfBoundsException
D) ArithmeticException
E) ArrayIndexOutOfBoundsException
51) What is displayed on the console when running the following program?

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

52) Analyze the following code:

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

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

53) _______ are unchecked exceptions.

A) IOException
B) Exception
C) RuntimeException
D) Throwable
54) You must place a method call in a try–catch block if the method claims an exception.
   A) true                  B) false

55) The listener for an action event is an instance of ________.
   A) ItemListener
   B) MouseListener
   C) KeyListener
   D) ActionListener
   E) ComponentListener

56) To be a listener for ActionEvent, an object must be an instance of ________.
   A) WindowListener
   B) ActionListener
   C) ActionEvent
   D) EventObject
   E) WindowEvent

57) Which of the following statements are true? (choose all that apply)
   A) The keyTyped handler is invoked when a Unicode character is entered.
   B) The keyTyped handler is invoked when a key is entered.
   C) The keyPressed handler is invoked when a key is pressed.
   D) The keyReleased handler is invoked when a key is released.

58) Which of the following statements are true? (choose all that apply)
   A) You can add multiple listeners for a Timer object.
   B) To start a timer, invoke timer.start().
   C) You must always specify a listener when creating a Timer object.
   D) To stop a timer, invoke timer.stop().
   E) When a timer is created, it is automatically started.

59) The component that processes the listener is called ________.
   A) the adapter object
   B) the source object
   C) the listener object
   D) the adaptee object

60) Which of the following are correct names for listener adapters? (choose all that apply)
    A) MouseAdapter
    B) WindowAdapter
    C) KeyAdapter
    D) ActionAdapter

61) ________ allows selections of multiple contiguous items without restrictions. (choose all that apply)
    A) Multiple-interval selection
    B) Single-interval selection
    C) Default selection
    D) Single selection

62) You can set a text field to be noneditable to prevent the user from modifying it.
   A) true                  B) false

63) How many items can be selected from a JComboBox object at a time?
   A) 2                  B) 0                  C) 1                  D) Unlimited
64) Which of the following statements are true? (choose all that apply)
   A) You can create a label with an icon.
   B) All the methods in JLabel are inherited from javax.swing.AbstractButton.
   C) You can set a mnemonic key in a JLabel.
   D) You can create a label with both text and icon.

65) The method _______ assigns the name Result to the Text of variable jlbl.
   A) jlbl.newText("Result")
   B) jlbl.text("Result")
   C) jlbl.setText("Result")
   D) jlbl.findText()

66) Suppose the manifest file in temp.jar specifies a main class Test, to run the main class from the jar file, use the following command:
   A) jar -jar temp.jar Test
   B) java -jar temp.jar Test
   C) java -jar temp.jar
   D) java Test -jar temp.jar

67) The default layout of the contentPane of a JApplet is ________.
   A) BorderLayout
   B) FlowLayout
   C) GridLayout
   D) None

68) An applet may contain ________. (choose all that apply)
   A) an instance method
   B) a main method
   C) a static method
   D) a no-arg constructor plus other overloaded constructors

69) If an exception occurs in a try-catch block, the code in the finally clause ________.
   A) is not executed if the exception is caught
   B) is not executed
   C) may be executed
   D) is executed

70) A method must declare to throw ________.
   A) Error
   B) unchecked exceptions
   C) RuntimeException
   D) checked exceptions
71) What is displayed on the console when running the following program?

```java
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) 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

72) You can use getWhen() to find the time of an ________. (choose all that apply)

A) ComponentEvent
B) MouseEvent
C) ActionEvent
D) WindowEvent
E) KeyEvent

73) Analyze the following code.

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

public class Test extends A {
    public static void main(String[] args) {
        A frame = new Test();
        frame.setSize(200, 100);
        frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        frame.setVisible(true);
    }
}

JButton jbtOK = new JButton("OK");

public Test() {
    getContentPane().add(jbtOK);
    jbtOK.addActionListener(this);
}

public void actionPerformed(ActionEvent e) {
    // Code for handling button action
}
```
super.actionPerformed(e);

if (e.getSource() == jbtOK)
    System.out.println("OK button is clicked");
}
}

class A extends JFrame implements ActionListener {
    JButton jbtCancel = new JButton("Cancel");

    public A() {
        getContentPane().setLayout(new FlowLayout());
        getContentPane().add(jbtCancel);
        jbtCancel.addActionListener(this);
    }

    public void actionPerformed(ActionEvent e) {
        if (e.getSource() == jbtCancel)
            System.out.println("Cancel button is clicked");
    }
}

A) If the super.actionPerformed(e) statement in the actionPerformed method in the Test
   class is omitted, no message is displayed if you click the Cancel button.
B) When you click the OK button the message "OK button is clicked" is displayed.
C) The program displays Cancel button on the left of the OK button.
D) When you click the Cancel button the message "Cancel button is clicked" is displayed.
E) All of the above.
74) Analyze the following code:

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

public class Test extends JFrame {
    public Test() {
        ImageIcon usIcon = new ImageIcon("image/usIcon.gif");
        JButton jbt1 = new JButton(usIcon);
        JButton jbt2 = new JButton(usIcon);

        JPanel p1 = new JPanel();
        p1.add(jbt1);

        JPanel p2 = new JPanel();
        p2.add(jbt2);

        JPanel p3 = new JPanel();
        p2.add(jbt1);

        add(p1, BorderLayout.NORTH);
        add(p2, BorderLayout.SOUTH);
        add(p3, BorderLayout.CENTER);
    }

    public static void main(String[] args) {
        // Create a frame and set its properties
        JFrame frame = new Test();
        frame.setSize(200, 100);
        frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        frame.setVisible(true);
    }
}
```

A) Three buttons displayed with the same icon.
B) Only jbt1 displays the icon and jbt2 does not display the icon.
C) Two buttons displayed with the same icon.
D) Both B and C.

75) If you pass HTML parameters to an applet, you must override the init() method to receive the parameters.
A) true
B) false

76) Any number divided by 0 would generate an exception.
A) true
B) false
77) The listener's ________ method is invoked after a mouse button is released. (choose all that apply)
   A) public void mouseClicked(MouseEvent e)
   B) public void mouseEntered(MouseEvent e)
   C) public void mouseReleased(MouseEvent e)
   D) public void mouseExited(MouseEvent e)
   E) public void mousePressed(MouseEvent e)

78) The following are properties of a JScrollBar. (choose all that apply)
   A) minimum
   B) maximum
   C) orientation
   D) visibleAmount

79) You can place an applet into a frame.
   A) true
   B) false

80) Which of the following is true?
   A) Exception handling addresses robustness whereas assertion addresses correctness.
   B) Use assertions to reaffirm assumptions.
   C) Exception handling deals with unusual circumstances during program execution.
      Assertions are intended to ensure the correctness of the program.
   D) Do not use assertions for argument checking in public methods.
   E) All of the above.
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59) C  
   ID: jp7 15–19  
60) A, B, C  
   ID: jp7 15–28  
61) A, C  
   ID: jp7 16–14  
62) A  
   ID: jp7 16–46  
63) C  
   ID: jp7 16–13  
64) A, D  
   ID: jp7 16–34  
65) C  
   ID: jp7 16–15  
66) C  
   ID: jp7 17–10  
67) A  
   ID: jp7 17–6  
68) A, B, C, D  
   ID: jp7 17–55  
69) D  
   ID: jp7 18–44
Answer Key
Testname: QUIZPRACTICE2

70) D  
   ID: jp7 18-25
71) B  
   ID: jp7 18-9
72) B, C, E  
   ID: jp7 15-18
73) E  
   ID: jp7 15-8
74) C  
   ID: jp7 16-9
75) A  
   ID: jp7 17-37
76) B  
   ID: jp7 18-52
77) A, C  
   ID: jp7 15-26
78) A, B, C, D  
   ID: jp7 16-17
79) A  
   ID: jp7 17-41
80) E  
   ID: jp7 18-18