

4. (10 points) What type of value does the instanceof operator return? Give an example of when to use this operator.

5. (10 points) What is an inner class? Why are they a preferred way to implement action listener functionality?

6. (5 points) Compare and contrast the FileInputStream and DataInputStream classes.

7. (15 points) Write Java code that will create a `JFrame` object and specify that its content pane should use a `GridLayout` layout manager.

8. (15 points) Show the lines of code necessary to create a `JButton` object with the title “Push Me” with red letters and a green background. You may use the `JButton` javadoc handout as a reference.

9. Consider the code below:

```
String input = JOptionPane.showInputDialog(null, "Enter an integer between 0 and 25");
int value;
try {
    value = Integer.parseInt(input);
    System.out.println("You entered " + value);
} catch (NumberFormatException e) {
    System.out.println("Message_1");
} catch (RuntimeException e) {
    System.out.println("Message_2");
    return;
} finally {
    System.out.println("Message_3");
}
```

```
System.out.println("Message_4");
```

(a) (5 points) What will be displayed if the user enters **13**?

(b) (5 points) What will be displayed if the user enters **thirteen**?

(c) (5 points) What will be displayed if the user enters **36**?



(d) (10 points) Modify the code so that it throws an **Exception** object if the user enters a number less than zero or greater than 25.

(e) (5 points) Using the modified code, what will be displayed if the user enters **36**?



Additional work area for any problem. Clearly identify to which problem the work on this page is related.