Program Testing – Worksheet 1

1. The supermarket has a 'Loyalty Scheme' that awards clients 10 points for every Euro spent. Clients can then exchange points for cash discounts.

   a. Shortly after implementation, it was noted that the Loyalty Scheme is not functioning as intended. When a client exchanges points for cash discounts, the discount is given but the client's points are not deducted.

      i. This is probably due to a _____ error.

      ii. Explain your answer in part [i]:

      _____

      _____

      iii. One thing the developers could have done to avoid this issue is: (tick the appropriate answer)

      Have a more extensive test plan   [ ]

      Make sure the program runs before distributing it.   [ ]

      Have produced a better feasibility report.   [ ]

   b. While working on fixing this issue, developers refer to their documentation.

      i. Which type of documentation should they consult in this case?

      _____

      ii. Name two things you would expect to find in this documentation:

      _____

2. The snippet program below is used to find the area of a circle.

   Line 1   `final double PI = 3.142;`
   Line 2   `System.out.print("Enter radius of circle: ");`
   Line 3   `rad = Keyboard.readDouble();`
   Line 4   `double area = PI*rad;`
   Line 5   `System.out.println("The Area is: "+area);`

   As it is, the program has **two errors**.

   a. Name the two errors together with their line numbers

      Error 1:   _____

      Line number: _____

      Error 2:   _____

Line number: _____

b. Rewrite the instructions without errors mentioned in part (a).

Error 1: _____

Error 2: _____

c. Briefly explain a **test data** that can be used to test this snippet.

Test data: _____

3. **Run-time** error is one type of programming errors.

a. Why do **run-time** errors usually occur?

_____

_____

b. Give and briefly explain the other two programming errors:

1st Error & Explanation: _____

_____

_____

2nd Error & Explanation: _____

_____

_____

c. For each error give an example of such an error:

Example of 1st Error: _____

Example of 2nd Error: _____

4. Programs have to be tested to identify any errors.

a. What is test data?

_____

_____

b. Using the JAVA instructions below, what suitable test data can be used to test the instructions. Justify your answer by giving a brief explanation.

```
for (int i =1; i < 11; i++) {
        System.out.println("Count is: " + i);
}
```

Suitable test data: _____

_____

Explanation: _____

_____

c. Name and explain one method which can be used to check the output of a program manually.

Method: _____

Explanation: _____

_____