

Questions

1) Run-time errors are detected while a program is being executed.

a) Name a type of error that occurs during run-time.

[1]

b) Name a type of error that prevents a program from running.

[1]

2) Give **two** reasons why testing is carried out on software.

[2]

3) A credit card can be used to pay for goods and services. It will have a limit which cannot be exceeded. For example, if a person has a limit of £7,000 and has already spent a balance of £6,900, then they can only spend another £100 before they reach their limit.

The function below is used when an attempt is made to pay by credit card:

```
1 function checklimit(balance,payment,limit)
2   if balance - payment <= limit then
3     return "Payment confirmed"
4   else
5     return "Payment declined"
6   endif
7 endfunction
```



The algorithm contains **two** errors. Identify the line number of each error, give the type of error, and show the corrected code for that line.

[6]

4) Examine the OCR ERL below:

```
children = input("Please enter number of children in a class:")
while children < 5 or children >= 30
    children = input ("Invalid number of children, try again.")
endwhile
```



a) State the type of validation check being performed by this routine.

[1]

b) For each test data item below, state the category of test data and explain why it is that category.

i) 3

ii) 4

iii) 15

iv) 29

v) 30

[10]

5) During the development of an algorithm, a programmer attempts to find a number (x) to the power of another number (y). The code used is shown below:

```
1 x = input("Input first number:")
2 y = input("Input power:")
3 // calculate x to power of y
4 answer = y^x
```



a) The programmer carries out iterative testing and inputs the value 2 for x and 3 for y. The expected output for answer is 8.

i) Give the actual result for answer when the code is tested.

[1]

ii) Explain why the actual result doesn't match the expected result.

[2]

iii) State the type of error that has caused this.

[1]

iv) Correct the error in the program.

[1]

b) When the programmer has completed his program, it is sent for final testing. Explain why final testing is necessary even though the programmer has carried out iterative testing.

[3]

The programmer wants to limit the value of x to be a positive integer no bigger than 5.

- c) Complete the table below to show **three** items of test data that could be used to test this system, giving the purpose of each test. Each item of test data should be for a different type of test. [6]



Test data	Purpose of this test