6 Each of the following algorithms performs data validation.

State the type of validation check that each of the algorithms performs.

(a)

```
INPUT x
IF x < 0 OR x > 10 THEN
  OUTPUT "Invalid"
ENDIF
```

..... [1]

(b)

```
INPUT x
IF x = "" THEN
  OUTPUT "Invalid"
ENDIF
```

..... [1]

(c)

```
INPUT x
IF NOT(x = "Red" OR x = "Yellow" OR x = "Blue") THEN
  OUTPUT "Invalid"
ENDIF
```

..... [1]

8 A company has several security measures in place to prevent unauthorised access to the data on its computers.

(a) Describe the difference between the security and privacy of data.

.....

.....

.....

..... [2]

(b) Each employee has a username and password to allow them to log onto a computer. An employee's access rights to the data on the computers is set to either read-only, or read and write.

Identify **one** other software-based measure that could be used to restrict the access to the data on the computers.

.....

..... [1]

(c) The company is also concerned about threats posed by networks and the internet.

Identify **two** threats to the data that are posed by networks and the internet.

Threat 1 .....

.....

Threat 2 .....

.....

[2]

2 Xanthe wants to maintain the integrity and security of data stored on her computer.

(a) Explain the difference between data security and data integrity.

.....

.....

.....

..... [2]

(b) Xanthe uses both data validation and data verification when entering data on her computer.

(i) Describe how data validation helps to protect the integrity of the data. Give an example in your answer.

Description .....

.....

.....

Example .....

[2]

(ii) Describe how data verification helps to protect the integrity of the data. Give an example in your answer.

Description .....

.....

.....

Example .....

[2]

(c) Two malware threats are spyware and viruses.

Give **two** similarities and **one** difference between spyware and a virus.

Similarity 1 .....

.....

Similarity 2 .....

.....

Difference .....

.....

[3]

3 A teacher is writing examination papers on a laptop computer. The computer is connected to the internet. The teacher is concerned about the security and privacy of the papers.

(a) State the difference between the security of data and the privacy of data.

.....

.....

..... [1]

(b) Identify **and** describe **two** threats to the data. Identify **one** security measure to protect against each threat. Each security measure must be different.

Threat 1 .....

Description .....

.....

Security measure .....

Threat 2 .....

Description .....

.....

Security measure .....

[6]

(d) The mark a student is awarded in a test will be entered into the database. This mark needs to be a whole number between 0 and the maximum number of marks for that test (inclusive).

Explain how data validation **and** data verification can be used when a mark is entered.

.....

.....

.....

.....

.....

.....

.....

..... [4]

1 A computer program makes use of data validation routines and verification of data input.

(a) Complete these **two** sentences about data validation and verification.

1. ..... checks that the data entered is reasonable. One example is ..... .

2. ..... checks that the data entered is the same as the original. One example is ..... .

[4]

(b) The program is installed on a computer system that has security measures in place to protect its data.

Complete the following table.

Security measure	Description
....	Data are written on two or more disks simultaneously.
Encryption	....
....	A copy of the data is taken and stored in another location.

[3]