# Digi-Trailblazers

# Spring 2019

# Marking Scheme

This marking scheme has been prepared as a **guide only** to markers. This is not a set of model answers, or the exclusive answers to the questions, and there will frequently be alternative responses which will provide a valid answer. Markers are advised that, unless a question specifies that an answer be provided in a particular form, then an answer that is correct (factually or in practical terms) **must** be given the available marks.

If there is doubt as to the correctness of an answer, the relevant NCC Education materials should be the first authority.

**Please note that marks should not be deducted for poor spelling and grammar unless this presents a significant barrier to comprehension and therefore the assessment of the quality of knowledge and thought.**

**Throughout the marking, please credit any valid alternative point.**

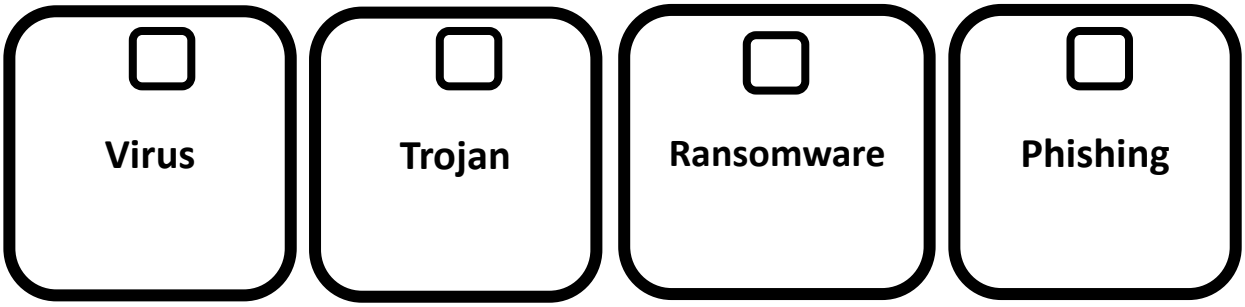
**Where markers award half marks in any part of a question, they should ensure that the total mark recorded for the question is rounded up to a whole mark.**

# Part A: Understanding Computing (50 marks)

**Tick ONE (1) correct answer for each question**

**Question 1**

Which ONE (1) of the following is used to lock accounts and demand payment for release?

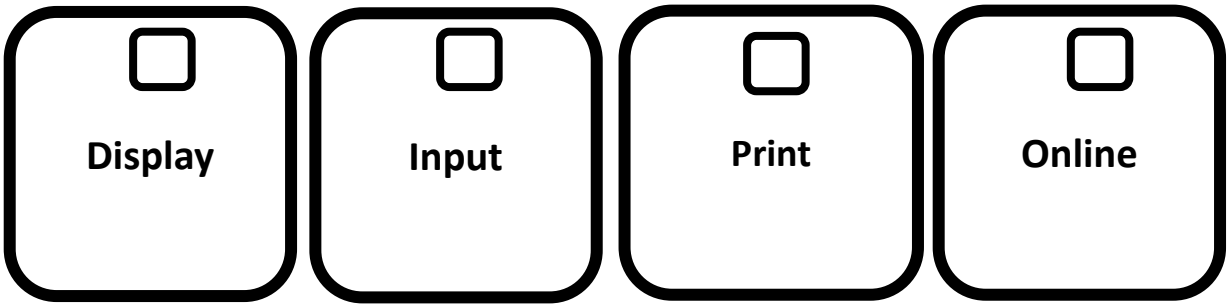



**4 marks**

***Answer: Ransomware***
***Award 4 marks for the correct answer***

**Question 2**

Which ONE (1) of the following is missing from the diagram below?

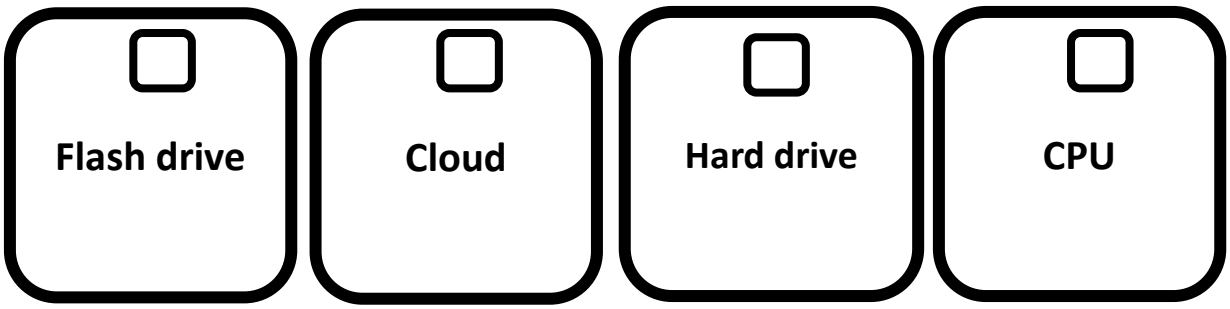




**4 marks**

***Answer: Input***
***Award 4 marks for the correct answer***

**Question 3**

Which ONE (1) of the following is not a form of storage?

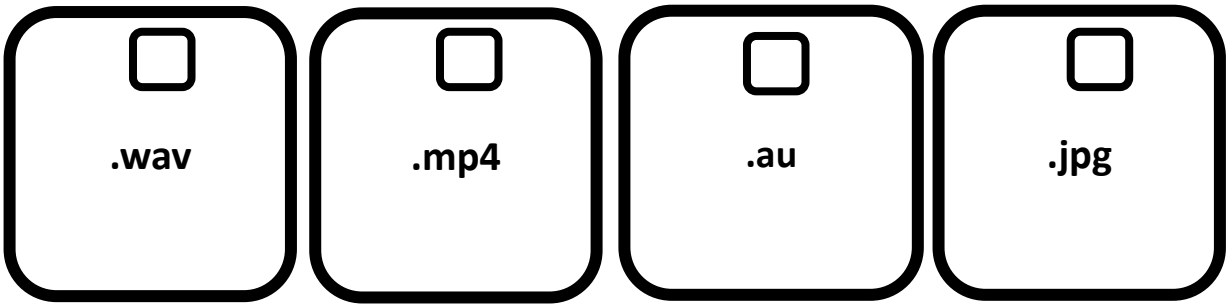



**4 marks**

***Answer: CPU***
***Award 4 marks for the correct answer***

**Question 4**

Which ONE (1) of the following is a video file?

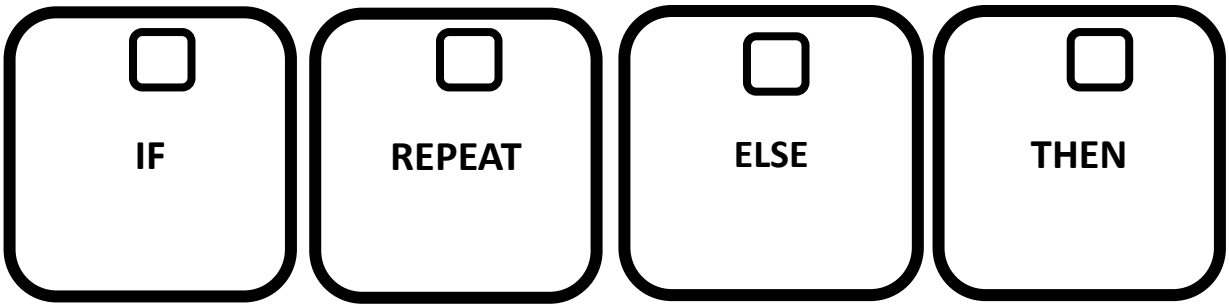



**4 marks**

***Answer: .mp4***
***Award 4 marks for the correct answer***

**Question 5**

Which ONE (1) of the following is a type of Loop used in programming?

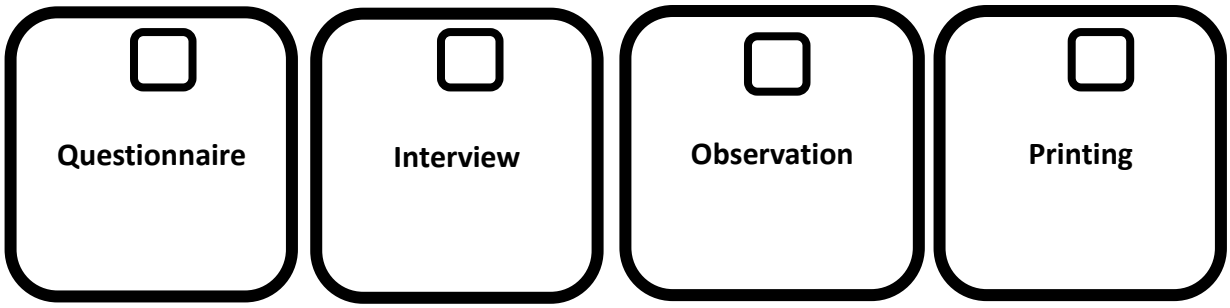



**4 marks**

***Answer: REPEAT***
***Award 4 marks for the correct answer***

**Question 6**

Which ONE (1) of the following is **not** used as a way to collect data?

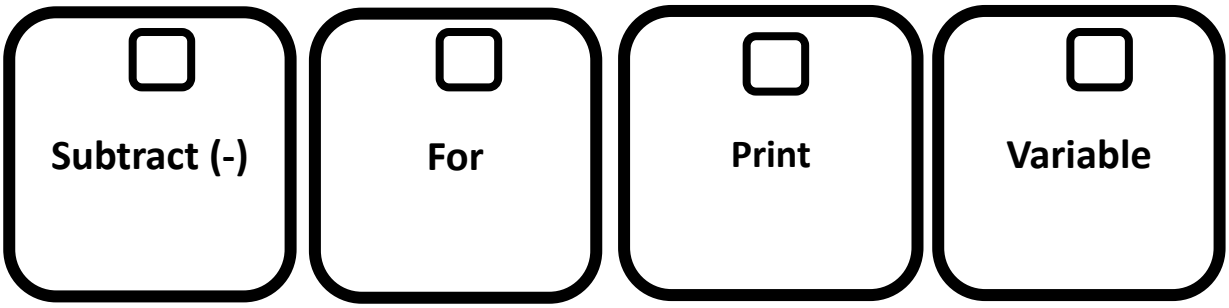



**4 marks**

***Answer: Printing***
***Award 4 marks for the correct answer***

**Question 7**

Which ONE (1) of the following programming commands is an operator?

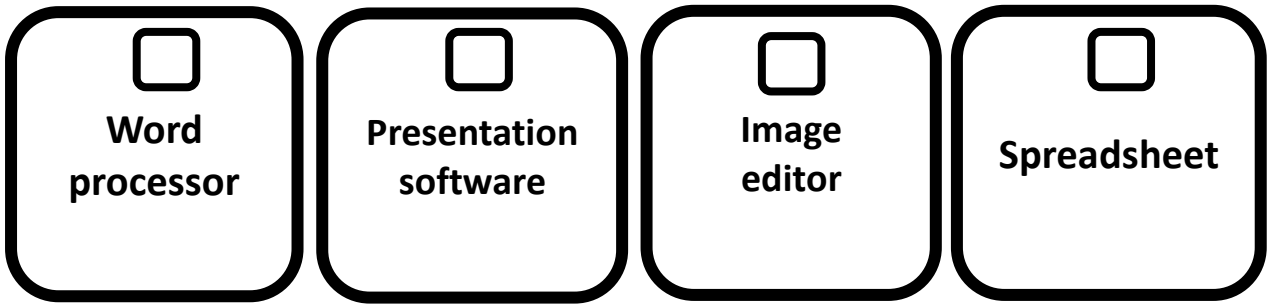



**4 marks**

***Answer: Subtract***
***Award 4 marks for the correct answer***

**Question 8**

If you were a small business owner which ONE (1) of the following applications would you use to store financial data?

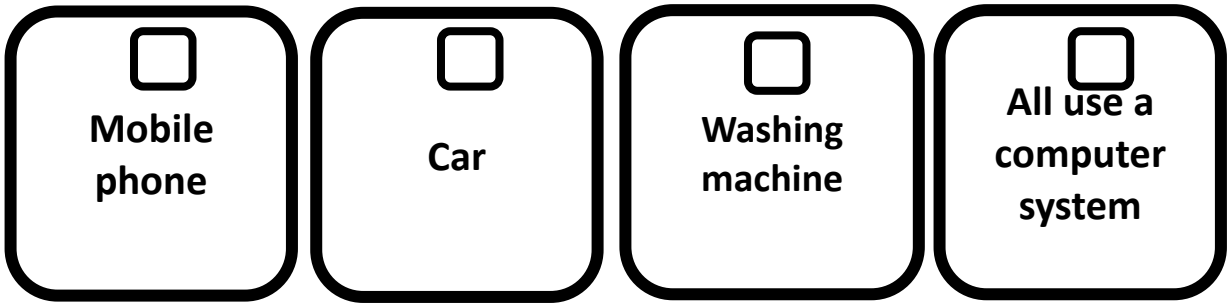



**4 marks**

***Answer: Spreadsheet***
***Award 4 marks for the correct answer***

**Question 9**

Which ONE (1) of the following uses a computer system to operate?

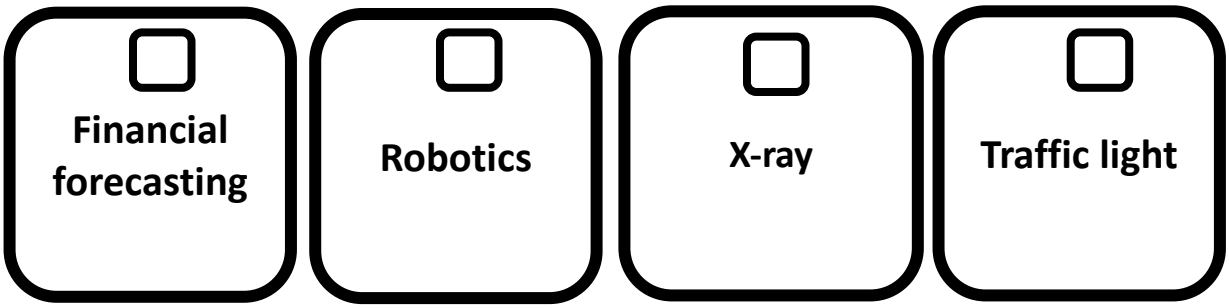



**4 marks**

***Answer: All use a computer system***
***Award 4 marks for the correct answer***

**Question 10**

Manufacturing uses which ONE (1) of the following computer models?

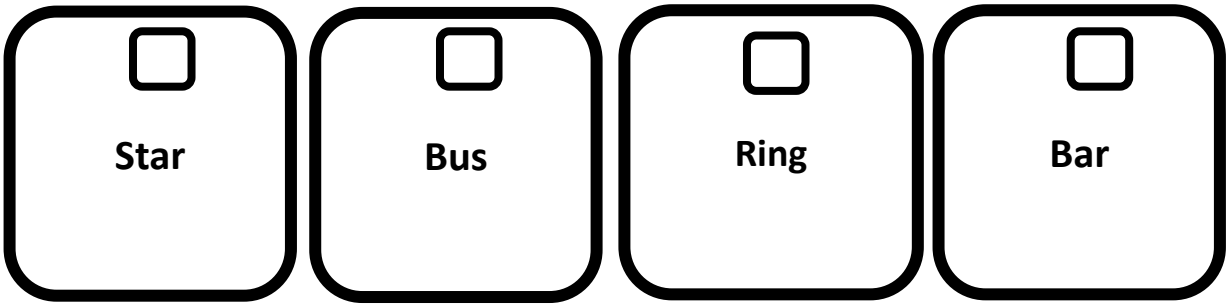



**4 marks**

***Answer: Robotics***
***Award 4 marks for the correct answer***

**Question 11**

Which ONE (1) of the following is not a type of network?

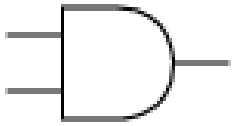



**4 marks**

***Answer: Bar***
***Award 4 marks for the correct answer***

**Question 12**

Which ONE (1) of the following Boolean operators is shown in the image below?



☐ AND ☐ NOT ☐ OR ☐ NOR

**4 marks**

***Answer: AND***
***Award 4 marks for the correct answer***

**Question 13**

The ASCII number for the uppercase letter N is 78. Which ONE (1) represents the binary equivalent number?

☐ 0100 1110 ☐ 0100 1100

**2 marks**

***Answer: 0100 1110***
***Award 2 marks for the correct answer***

# Part B: Using Computers (50 marks)

**Question 14**

**a)** Imagine you are a party organiser for an entertainment company. The owner would like to see how many guests have attended each party over the first 6 months of this year. Use spreadsheet software to produce spreadsheet using the data below.

Guests attending:
January: 502
February: 232
March: 843
April: 338
May: 646
June: 989

Choose a layout, font and colour scheme for your spreadsheet that you think the owner would like. Your spreadsheet must include a suitable title and formatting.
***Max 6 marks can be awarded if the data has been included correctly. 4 marks should be awarded if the layout, font and colour scheme are effective and appropriate.***

**10 marks**

**b)** Add ONE (1) suitable chart to the spreadsheet including a title, vertical and horizontal axis labels.
***Award max 5 marks for inserting a suitable chart using the data. 1 mark for including a suitable title, 1 mark each for a suitable vertical and horizontal axis labels. Total of 8 marks.***

**8 marks**

**c)** Add a formula to calculate the total number of guests attending over the first six months.

***Example: =SUM(B2:B7)***

***An appropriate formula would be =SUM(first cell:last cell), 2 marks for any appropriate formula, 1 mark for a good formula with a minor error.***

**2 marks**

**d)** How can you test the accuracy of the spreadsheet?

***Award 2 marks for describing or demonstrating the use of a manual calculation. Marks may be awarded for any credible alternative answer provided.***

**2 marks**

**Total 22 marks**

**Question 15**

**a)** Design a questionnaire that allows you to find out the following information:

- Mrs
- My first name is Alexandra
- My surname is Donald
- My date of birth is 12 July 1995
- I am 23 years old

Plan your design in the box below:

***What is your title?***
***What is your first name?***
***What is your surname?***
***What is your date of birth?***
***What is your age?***

***Award 1 mark for each sensible asked question.***

**5 marks**

**b)** Other than the example data included in part a) above, state FIVE (5) **OTHER** pieces of data could be included in a questionnaire to find out more about the individual?

1. _____
2. _____
3. _____
4. _____
5. _____

**Award 1 mark for each suitable example. Examples: Gender/Occupation/Address/Marital status/Place of birth etc** **5 marks**

**Total 10 marks**

**Question 16**

**a)** In programming not calling a function is a common error in programming. List TWO (2) other types of errors that you might find in a program.

1. _____

2. _____

***Students may list specific errors, e.g. incorrect variables, not terminating a loop, parameter not being passed. They may provide broader examples such as syntax errors, runtime errors or logic errors.***

***2 marks for each correct example, maximum 4 marks***

**4 marks**

**b)** Debugging during testing is key to the delivery of operational programs. State TWO (2) other ways you can test your program is working correctly.

1. _____

2. _____

***Examples: Using a test plan, manually checking line by line, checking for spelling errors, user testing.***

***Award 2 marks for each correct answer, maximum of 4 marks***

**4 marks**

**Total 8 marks**

**Question 17**

In a word processor, write an algorithm that shows the steps that you would take to apply for a job online.

***Steps could include any of the following:***

- ***Open a web browser***
- ***Search for job websites and choose one***
- ***Search the jobs website for the type of job you want***
- ***Read the information***
- ***Click to apply for the job***
- ***Enter your details***
- ***Attach you CV and/or cover letter***
- ***Wait to hear from the company***

***10 marks for a full and accurate algorithm similar to the example above, 3-6 marks for a partially correct algorithm that may have one or two steps that are missing or in the wrong order. 1-2 marks are available for some attempt to produce the algorithm using an appropriate approach and identifying some key steps.***

**10 marks**

## Learning Outcomes matrix

| **Part A: Understanding Computing** | |
|---|---|
| **Question** | **Learning Outcomes assessed** |
| 1 | Understand the consequences to users of not using technology safely, respectfully, responsibly and securely. |
| 2 | Understand how internal hardware components work and communicate with each other. |
| 3 | Understand the interaction between a hardware and software components. |
| 4 | Understand how different data types can be represented and manipulated. |
| 5 | Understand programming terminology. |
| 6 | Understand how to use appropriate methods and devices to collect and analyse data. |
| 7 | Understand programming terminology.<br>Know how to write in code using appropriate data structures. |
| 8 | Understand the functions of different types of software.<br>Understand the interaction between hardware and software components. |
| 9 | Understand that there are different types of computer system. |
| 10 | Understand that computer models can be used to break down tasks and problems into manageable parts. |
| 11 | Understand the interaction between a computer system and a network. |
| 12 | Understand the purpose and application of Boolean logic. |
| 13 | Understand the term binary.<br>Know how to convert binary and decimal numbers. |

| **Part B: Using Computers** | |
|---|---|
| **Question** | **Learning Outcomes assessed** |
| 14 | Know how to present information clearly and effectively for a designated target audience.<br>Know how to design a digital artefact for a particular target audience.<br>Understand how to use appropriate techniques and technologies to create a digital artefact. |
| 15 | Understand how to use appropriate methods and devices to collect and analyse data. |
| 16 | Know how to correct errors in syntax and meaning in a program. |
| 17 | Know how to develop algorithms that fulfil a range of functions. |