Marking Scheme

1 (a)

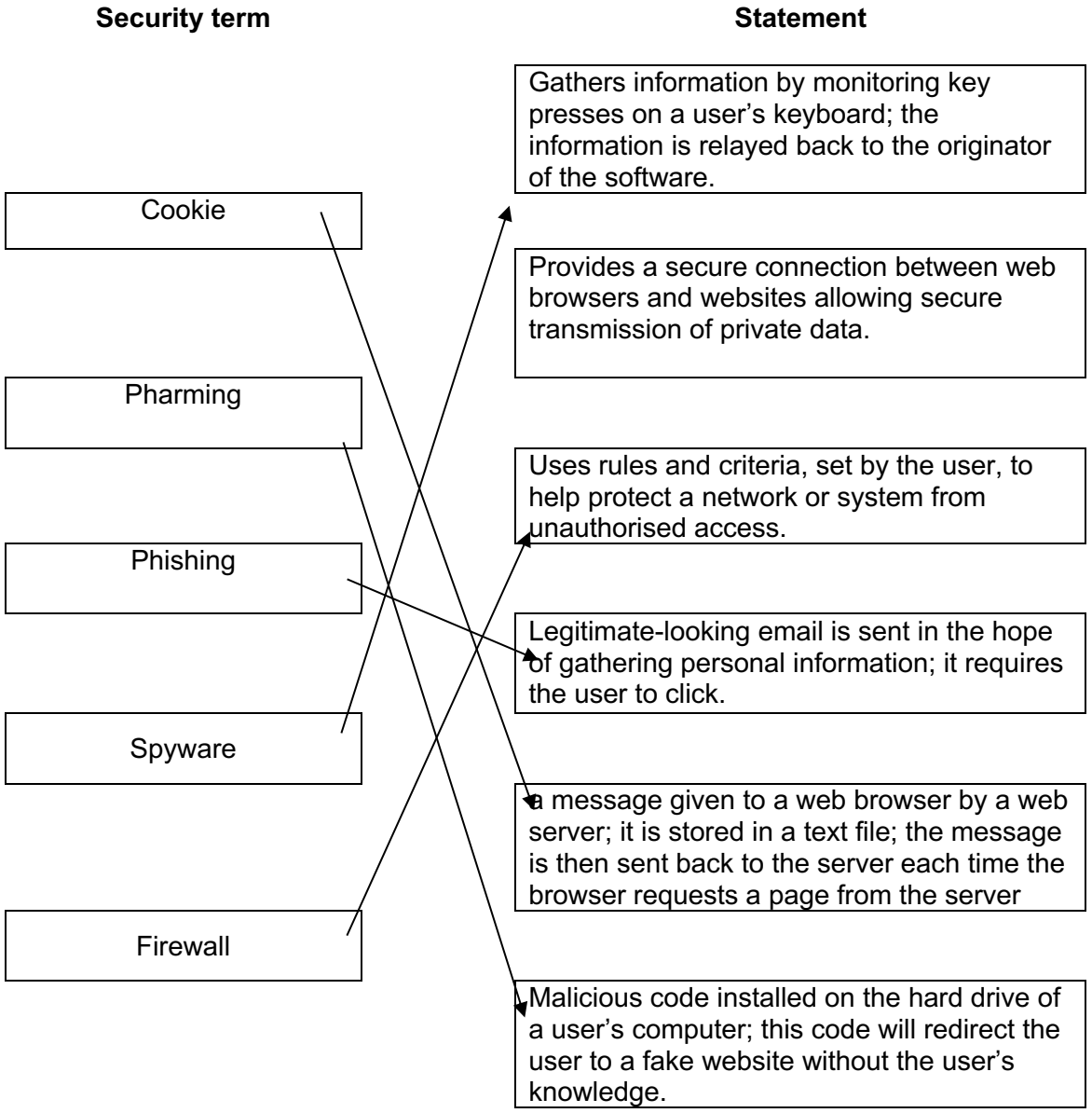
• 2048/1024 (or 1024 × 2)
• 2 GB [2]

(b) • Instructions/programs/data
• currently in use [2]

(c) Any **two** from:

• RAM is volatile, ROM is non-volatile
• RAM is temporary, ROM is (semi) permanent
• RAM normally has a larger capacity than ROM
• RAM can be edited ROM cannot be edited // Data can be read from and written to RAM, ROM can only be read from. [2]

2



[5]

3 **(a)** freeware

(b) free and open source software

(c) shareware [3]

4 **(a)** media access control [1]

(b) Any two from:

– hardware/physical address
– unique address/number associated (with network card in) a device/computer
– usually 48/64 bits (12/16 hex digits)
– first 6/8 digits = manufacturer code/ID of device (NIC)
– last 6/8 digits = serial number of device (NIC) [2]

5 **(a)**

F A 7	**1**	**1**	**1**	**1**	**1**	**0**	**1**	**0**	**0**	**1**	**1**	**1**
D 3 E	**1**	**1**	**0**	**1**	**0**	**0**	**1**	**1**	**1**	**1**	**1**	**0**

[4]

(b)

1	**1**	**0**	**1**	**0**	**0**	**1**	**0**	**0**	**1**	**1**	**0**

[2]

(c)

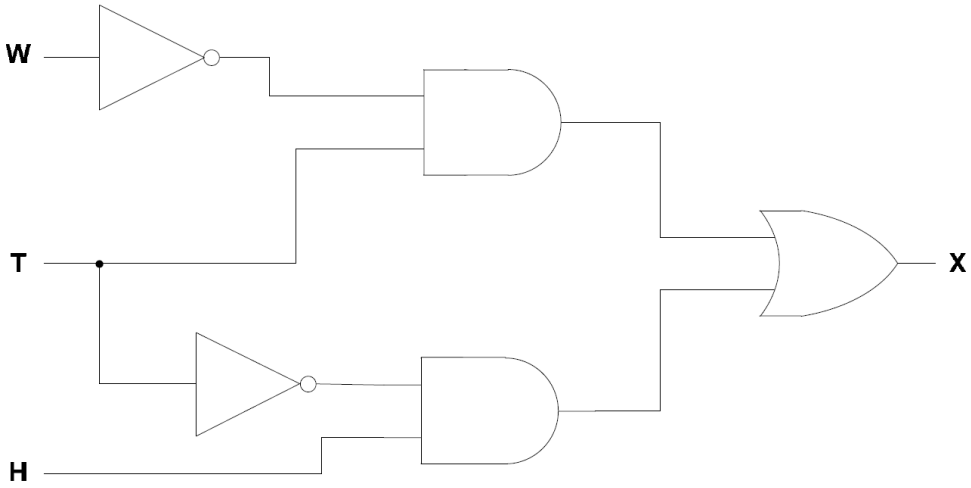
D 2 6 [2]

(d) **Two** from:

- It makes the values easier to read/write/understand/debug
- Shorter way to represent binary // Uses less **screen/display** space
- Fewer errors made (in data transcription)
- Easier to debug (for humans) [2]

6 **(a)** X = (NOT W AND T) OR
(NOT T AND H) [2]

(b)



[5]

(c)

Input			Working space	Output
W	**T**	**H**		**X**
0	0	0		0
0	0	1		1
0	1	0		1
0	1	1		1
1	0	0		0
1	0	1		1
1	1	0		0
1	1	1		0

[4]

4 marks for 8 correct outputs
3 marks for 6 or 7 correct outputs
2 marks for 4 or 5 correct outputs
1 mark for 2 or 3 correct outputs

7

– Line 2: `OutRange = 0`
– Line 6: should be `OutRange = OutRange + 1`
– Line 7: `NEXT X` should be `NEXT Count` / Line 3: `FOR Count = 1 TO 10` should be `FOR X = 1 TO 10` [6]

8 **(a)**

• SSD // SD card // Flash memory

• Small physical size
• Lightweight
• Low heat production
• Low power consumption
• It's quiet
• Fast read/write times

(b)

• DVD // Blu-ray // USB Flash Drive // SD card

• Easy to distribute
• Small in size
• Cheap to buy
• Universal storage therefore compatible with many devices

[4]

9 **(a)** Any one from

• To convert it to binary/machine code
• The processor can only understand machine code [1]

(b) Any two from

• Compiler translates all the code in one go…
• …whereas an interpreter translates one line at a time

• Compiler creates an executable…
• …whereas an interpreter does not/ executes one line at a time

• Compiler reports all errors at the end…
• …whereas an interpreter stops when it finds an error [4]

10 **(a)**

Parity Bit							
0	1	0	1	0	0	1	1
0	1	0	1	1	1	1	1
1	1	0	1	0	0	0	1

[2]

(b) Any one from:
– an even number of digits are changed
– a transposition error(s) has occurred [1]

(c) Checksum [1]

11 (a)

(4 × 1) + (2 × 2) + (4 × 3) + (1 × 4) + (5 × 5) + (0 × 6) + (8 × 7)

= 4 + 4 + 12 + 4 + 25 + 0 + 56 = 105

105/11 = 9 remainder 6

check digit is: 6 [2]

(b) 1 mark
– No/incorrect check digit

2 marks
– Total is 78
– 78/11 …
– … gives 7 remainder 1
– check digit should be 1 [3]

12 (a) LEFT

(b) MID

(c) COUNTIF

(d) = C2 – E5

[4]

13 **(a)** Any two advantages

– no trailing wires (therefore safer, less expensive since no cables)
– allows users to work anywhere (portability)
– can set up network in places where cable runs are not possible (e.g. outside, historic buildings etc.)

[2]

Any one disadvantage

– limited range
– certain items (like filing cabinets) can block the signals
– possible to 'tap' into WiFi if it isn't secure
– often slower data transfer rate than a wired system
– needs additional hardware
– number of access points need to match computers [1]

(b) Any two advantages

• Centralised control of data and resources
• Easier to schedule backups of all shared files at regular intervals
• Enhances security with the use of built-in security features through the network operating system
• Server is accessible remotely and across multiple platforms [2]

Any one disadvantage

• Higher setup cost due to the need for a higher-performance server.
• Administrative costs needed for the maintenance of server and clients [1]

14

Fib	Prev2	Prev1	Number	OUTPUT
1	0	1	**7**	
1	**1**	**1**	**6**	
2	**1**	**2**	**5**	
3	**2**	**3**	**4**	
5	**3**	**5**	**3**	
8	**5**	**8**	**2**	**8**

[4]

15

– correct loop (for, repeat or while loops all work)
– correct input
– check whether D1 = D4 and D2 = D3
– summation if D1 = D4 and D2 = D3
– calculate percentage and output the value outside the loop [4]

sample program

```
T = 0
FOR N = 1 to 50
INPUT D1, D2, D3, D4
        IF D1 = D4 and D2 = D3 THEN T = T+1
NEXT N
percent = T * 2
OUTPUT percent
```