

SMART EXAM RESOURCES
0478 IGCSE COMPUTER SCIENCE
PAPER-1
NUMBER SYSTEMS
QP-MS

1

The size of a file can be measured in different units.

- (a) State how many bits there are in a byte.

..... [1]

- (b) State how many kibibytes (KiB) there are in 2 mebibytes (MiB).

..... [1]

- (c) Identify the unit of data that is equal to 4 bits.

..... [1]

MARKING SCHEME

(a)	8	1
(b)	2048	1
(c)	nibble	1

A programmer is creating a computer game. One character is **not** moving correctly.

The programmer needs to debug the program. To do this they need to look at addresses that are locations in memory.

The addresses are displayed as hexadecimal numbers.

(a) One address is A2F.

(i) Convert the address to binary.

..... [3]

(ii) Convert the address to denary.

..... [1]

Working space

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(b) The binary number stored for another address is 000110011011.

(i) Convert the binary number to hexadecimal.

..... [3]

(ii) Convert the binary number to denary.

..... [1]

Working space

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(c) Give **one** reason why the addresses are displayed in hexadecimal instead of binary.

.....

..... [1]

(d) Identify **two** other ways that hexadecimal is used in computer science.

- 1
- 2 [2]

(e) The health value for a character in the computer game can sometimes be a negative value. The negative values are stored as two's complement 8-bit integers.

A character has a health value of -25 .

Calculate the two's complement 8-bit integer for -25 . Show all your working.

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..... [2]

MARKING SCHEME

(a)(i)	One mark for each correct nibble, in the correct order. 1010 0010 1111	3
(a)(ii)	2607	1
(b)(i)	One mark for each correct character, in the correct order. 1 9 B	3
(b)(ii)	411	1
(c)	Any one from: • It is easier/quicker to read/understand/debug • It is a shorter representation of binary // It takes up less screen space	1
(d)	Any two from: Example: • HTML colour codes • URL • Memory dump • IP address • MAC address • Assembly language • Error codes/messages • ASCII/Unicode	2
(e)	One mark for correct working: Example: flip and add One mark for correct answer. 11100111	2