

1 (a) A student paints a picture in an art class.

The student takes a photograph of the picture using a digital camera. The digital camera creates an image with a resolution of 2 million pixels and uses a bit depth of 16 bits.

(i) Calculate the file size of the image created by the digital camera in megabytes (MB).

Show your working.

Working space .....

.....

.....

Answer ..... MB

[2]

(ii) The student takes a second photograph with a lower bit depth.

Explain the effect of decreasing the bit depth on the image and on the image file.

Effect on image .....

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Effect on image file .....

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[4]

(b) A teacher records an audio file of the student playing the piano during a music lesson.

Complete the table by giving the term for each description about sound representation on a computer.

Description	Term
the number of times the amplitude is measured per time interval	
the number of bits used to store each amplitude measurement	
the type of sound wave before it is recorded by a computer	

[3]

(c) The student types a report on a computer in a history lesson.

(i) The computer uses the Unicode character set.

Give **two** characteristics of the Unicode character set.

1 .....

.....

2 .....

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[2]

(ii) Some of the school's computers use the extended ASCII character set.

The table gives some characters from the extended ASCII character set, their denary, 8-bit binary and hexadecimal numbers.

Complete the table by filling in the missing numbers.

Character	Denary	8-bit Binary	Hexadecimal
!	33		21
L		01001100	4C
ü	252	11111100	

[3]