Units
Data Representation

GCSE Computer Science Questions & Answers

Name:	
Score:	/

Q1	Bob purchases a 4GB SD card for use as secondary storage in his phone. Calculate how many megabytes there are in 4GB. Show your working.	[2 marks]
AQA (2016 Spec) - Specimen Question Paper - Paper 2		/2

Q2	Another sound file has a size of 24,000 bits. What is 24,000 bits in kilobytes? You should show your working.	[2 marks]
AQA (2016 Spec) - Specimen Question Paper - Paper 1		/2

Q3	William transfers some videos to a computer for editing. The computer has 1GB of storage free. Calculate the number of videos that could be stored on the computer if each video was 100MB in size. Show your working.	[2 marks]
OCR (2016 Spec) - 2018 Question Paper - Paper 1		/2

Q4	Place the following quantities in order of size (1 – 4, where 1 is the smallest and 4 is the largest).	[3 mark]

Quantity	Order (1-4)
15 bits	
3 nibbles	
2 bytes	
1 kilobyte	

AQA (2013 Spec) - Specimen Question Paper - Paper 2	/3

Q5	Misha wants to save some music files onto a solid state drive (SSD)	[3 mark]

A, Which of these SSD's has the largest capacity?

[1 mark]

A	250 gigabyte (GB)
B	200 000 megabyte (MB)
C	0.3 terabyte (TB)
D	40 000 000 kilobyte (KB)

B, Calculate how many 5MB music files Misha could save onto a 250 GB SSD

[2 marks]

AQA Workbook	/3

Q6	Gigi is designing some images to be used in a video game. Each image file takes up 100 KB.	
	A, Calculate how many **bits** there are in each image file.	[2 marks]
	B, Gigi has made 5000 image files for the game. Calculate, in **GB** the total size of these files.	[2 marks]
	C, The images are stored on her computer using binary. Describe how binary is used to represent data in computers	[2 marks]
AQA workbook		/6

Answers

Q1	**1000 × 4 // 4000;** **1 mark for AO1: identifying that there are 1000 megabytes in a gigabyte;** **1 mark for AO2: multiplying by 4;** **A. 1024 × 4 // 4096;** **Maximum 1 mark: If final answer not correct.**
Q2	**2 marks for AO2 (apply)** **2 marks if the answer given is 3 KB (l. no units);** **If the answer is incorrect award then:** **1 mark for for performing a division by 8, evidenced by answer or method being shown;** **1 mark for performing a division 1000, evidenced by answer or method being shown;** **MAX 1 if answer is incorrect.** **A. if students have used 1024 instead of 1000.**

Q3	**1 mark for working, 1 mark for answer**
	   - **1024(1000) / 100 // 10*100 = 1000**
	   - **= 10 (videos)**

Q4	**1 mark if 1 number correct; 2 marks if 2 numbers correct; 3 marks if all 4 numbers correct;** **The correct order is: 2, 1, 3, 4** <table><tr><td>**Quantity**</td><td>**Order (1-4)**</td></tr><tr><td>**15 bits**</td><td>**2**</td></tr><tr><td>**3 nibbles**</td><td>**1**</td></tr><tr><td>**2 bytes**</td><td>**3**</td></tr><tr><td>**1 kilobyte**</td><td>**4**</td></tr></table>
Q5	**Answer to question A is C [1 mark]** **Answer to question B** **250 GB = 250 x 1000=250 000 MB [1 mark]** **250 000/5 = 50 000 files [1 mark]**

Q6	**A) 100 kB= 100*1000=1000 000 bytes [1 mark],**
	    1000 000 bytes = 100 000 x 8 = 800 000 bits [1 mark]
	
	B) 5000 x 100 kB = 5000 000 kB [1 mark]
	    500 000 kB = 5000 000 / 1000 = 500 MB
	    500 MB = 500 / 1000 = 0.5 GB [1 mark]
	
	C) Computers are made up of logic circuits [1 mark] which use high and low voltages to represent 1s and 0s [1 mark]