MODULE C DATA REPRESENTATION · C10

# Representing sound

Original practice questions · 20 marks · ~25 minutes · Cambridge 0478 syllabus 1.2.2

Name _____ Date _____

**Instructions.** Answer all questions in the spaces provided. No calculator. The marks for each part are shown in brackets [ ]. The total for this worksheet is **20 marks**.

## 1

Total: 2 marks

**(a)** Define the term **sample rate**. **[1]**

**(b)** Define the term **sample resolution**. **[1]**

## 2

Total: 4 marks

**(a)** Tick (✓) **one** box in each row to show whether each statement is true or false. **[4]**

| Statement | True | False |
|---|---|---|
| A sound wave must be sampled to be converted to binary. | | |
| The sample rate is the number of bits used for each sample. | | |
| Increasing the sample resolution makes the recording more accurate. | | |
| Decreasing the sample rate increases the file size. | | |

## 3

Total: 2 marks

**(a)** A recording uses a sample resolution of 5 bits. State how many different values each sample can have. **[1]**

**(b)** Give **one** reason why a sample resolution of 16 bits gives a more accurate recording than 5 bits. **[1]**

**4** **Total: 4 marks**

**(a)** A recording is changed in four different ways. For each change, tick (✓) **one** box for accuracy **and one** box for file size. Everything else stays the same. **[4]**

| Change | More accurate | Less accurate | File size increases | File size decreases |
|---|---|---|---|---|
| Sample rate increased | | | | |
| Sample resolution decreased | | | | |
| Sample resolution increased | | | | |
| Sample rate decreased | | | | |

**5** **Total: 5 marks**

**(a)** Explain how a computer represents sound. Include the effects of sample rate and sample resolution in your answer. **[5]**

**6** **Total: 3 marks**

A company stores spoken tour tracks on small handheld audio guides for a museum. The guides are running out of storage.

**(a)** Identify **one** change the company could make to the settings to reduce the file sizes. **[1]**

**(b)** State **one** drawback of the change you identified in part (a). **[1]**

**(c)** The file size of each track also depends on one other factor. State this factor. **[1]**

**Total for this worksheet: 20 marks**