Question	Part	Marking guidance	Total marks
01	1	**2 marks for AO1 (understanding)** Maximum of 2 from: Computer systems use binary/ones and zeros/voltage on or off; Sound is analogue/continuous/wave; Computers use discrete values;	2
01	2	**4 marks for AO2 (apply)** 4 marks if answer is correct 5,000 bytes/5,000B/5 kB;;;; **A.** 5,000 If answer given is not 5,000 bytes then award working marks as follows: Mark A for multiplying any two of 2,000, 4 and 5 even if the result is incorrect; Mark B for multiplying all of 2,000, 4 and 5 even if the result is incorrect; Mark C for attempting to divide the result of a calculation by 8; Partially correct examples: Example 1 2,000 * 4 = 8,000; (Mark A) 8,000 / 8 = 1,000; (Mark C) Example 2 2,000 * 4 * 5 = 20,000;; (Mark A and Mark B, note result is incorrect) 20,000 / 8 = 2,000; (Mark C, note result is incorrect)	4
01	3	**Mark is for AO2 (apply)** **B** (5 bits) only; **If more than one lozenge shaded then mark is not awarded**	1
01	4	**Mark is for AO2 (apply)** **D** (improves the quality of the recording and increases the file size.) only; **If more than one lozenge shaded then mark is not awarded**	1

Question	Part	Marking guidance	Total marks

2	1	**6 marks for AO3 (program)**
		1 mark for each correct item in the correct location
		
		`SUBROUTINE getSize(`**`sampRate, res,`** `seconds)`
		`    `**`size`** `← sampRate * res * seconds`
		`    size ←` **`size / 8`**
		`    `**`RETURN`** `size`
		`ENDSUBROUTINE`
		
		`OUTPUT` **`getSize`**`(100, 16, 60)`
		
		I. Case
		R. Incorrect order of parameters
			6

Qu	Part	Marking guidance	Total marks
03	1	**3 marks for AO1 (understanding)** A **maximum of 3 marks** can be awarded. Example mark points include: • a microphone/sound sensor picks up/detects the sound wave; • this wave is converted to an (electrical) analogue signal; • the amplitude/height of the wave is measured; • the sampling takes place at regular intervals; • these samples are stored as binary values; **Note:** award one mark for "analogue (signal) converted to digital" if none of the last three example mark points awarded	3
03	2	**2 marks for AO2 (apply)** 1320 (kB);; If the answer given is not 1320 kilobytes, a **maximum of 1 working mark** should be awarded as follows: 1. Multiplying the correct 3 values together (44 000 * 30 * 8 = 10,560,000 bits) even if the result is incorrect; 2. Dividing the result of a multiplication by 8 (even if the result is incorrect); 3. Correctly dividing the result of a calculation by 1000;	2

Qu	Part	Marking guidance	Total marks
04	1	**Mark is for AO1 (recall)** (Sample resolution is the number of) bits per sample;	1

Qu	Part	Marking guidance	Total marks
04	2	**Mark is for AO1 (understanding)** Maximum of **one** mark from: • larger file size/takes up more storage space; • sound files will take longer to download/transmit; • uses more memory/processing power (when recording);	1

Qu	Part	Marking guidance	Total marks
04	3	**2 marks for AO2 (apply)** 4;; Maximum of **one** mark (if not fully correct) from: • multiplying the three values (50, 40 000 and 2) together (even if result is incorrect); • division by 1000; • division by 1 000 000;	2

Qu	Part	Marking guidance	Total marks
05	**1**	**Mark is for AO1 (recall)** One (sound) sample per second; **A.** one cycle (of the wave) per second	1

Qu	Part	Marking guidance	Total marks
05	**2**	**3 marks for AO2 (apply)** 0.5MB;;; If the answer given is not fully correct then award a **maximum of 2 working marks** as follows, even if the resulting intermediate calculation is incorrect: • Multiplying 50 **or** 4 by 20 000; • Multiplying 50 **or** 20 000 by 4; • Dividing result of calculation by 8 **or** 8000; • Dividing result of calculation by 1 000 000 **or** 1000;	3

Qu	Part	Marking guidance	Total marks
06	1	**2 marks for AO1 (understanding)** Maximum of 2 from: Computer systems use binary/ones and zeros/voltage on or off; Sound is analogue/continuous; Computers use digital data/discrete values;	2
06	2	**4 marks for AO2 (apply)** 4 marks if answer is correct 5,000 bytes/5,000B;;;; **A.** 5,000 If answer given is not 5,000 bytes then award working marks as follows: Mark A for multiplying any two of 2,000, 4 and 5 even if the result is incorrect; Mark B for multiplying all of 2,000, 4 and 5 even if the result is incorrect; Mark C for attempting to divide the result of a multiplication by 8; Partially correct examples: Example 1 2,000 * 4 = 8,000; (Mark A) 8,000 / 8 = 1,000; (Mark C) Example 2 2,000 * 4 * 5 = 20,000;; (Mark A and Mark B, note result is incorrect) 20,000 / 8 = 2,000; (Mark C, note result is incorrect)	4

Qu	Part	Marking guidance	Total marks
06	3	**Mark is for AO2 (apply)** **B** 5 bits; **R.** If more than one lozenge shaded	1
06	4	**Mark is for AO2 (apply)** **D** Improves the quality of the recording and increases the file size; **R.** If more than one lozenge shaded	1