



Pearson  
Edexcel

Examiners' Report  
Principal Examiner Feedback

Summer 2024

Pearson Edexcel GCE  
Music Technology (9MT0)  
Paper 04

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Summer 2024

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## 9MT0/41 Principal Examiner's Report to Centres 2024

Examiners received work with papers scoring the full range from about 5 marks through to near full marks, so the exam differentiated well across the expected ability range, reliably measuring the candidate's ability level.

Most candidates excelled in some areas more than others; they did not perform uniformly across the whole paper.

For the practical work for this unit, LWT worked well again this year. Usually, work was well labelled and easy for examiners to locate.

Please take care when uploading candidate work. Some centres supplied incorrect submissions such as:

- not uploading any work at all
- not uploading work for some candidates
- uploading the question paper files rather than the candidate's answers
- including DAW files (please don't include DAW files because these cannot be assessed on this unit).

Candidates are advised to listen back to their bounces in their entirety using media player software like QuickTime to ensure they play back as expected. Incorrect bounces included:

- incomplete bounces, i.e. bars missing. Very commonly in question 2, bars 1-9 were missing so examiners could not assess whether the noise had been removed from bar 9.
- bounces at the wrong speed, so the candidates could not receive credit for correct rhythm in questions 1 and 2.
- metronome left on. Therefore, elimination of noise and glitches could not be credited.

Other than for question 5, candidates are advised to bounce the whole track from bar 1 to the end, which ensures that they have included all of the work they need to.

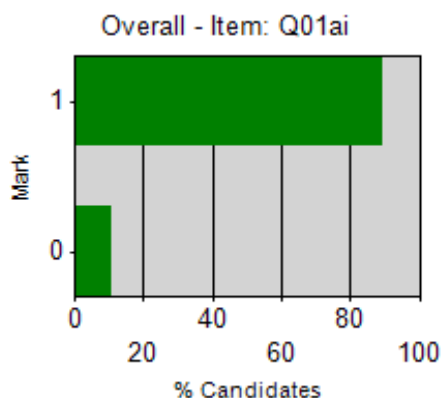
Handwriting was noticeably even harder to read than normal in 2024. Examiners find it hard to read some handwriting. Credit cannot be given for answers that are illegible. This isn't limited to "scruffy" handwriting. There are examples of exceptionally neat handwriting, which is illegible, e.g. if the letters are too small, or joined up in a way that the letters cannot be read. Examiners are marking low resolution scans of exam papers, so small scruffy writing is particularly problematic. If teachers have any doubt at all about legibility of a candidate's handwriting, the candidate should type their answers. Typed answers were much easier for examiners to read and credit.

In this report, there is a bar chart which shows the mark distribution for each question.

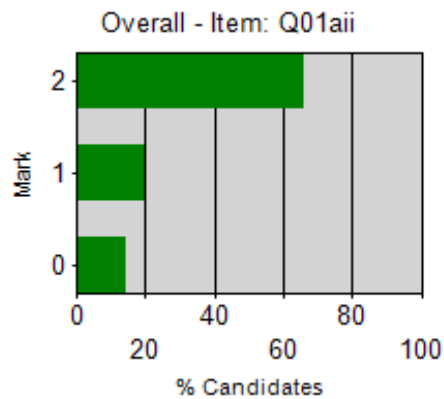
### Question 1

Exam papers are ramped so question 1 began with easier questions.

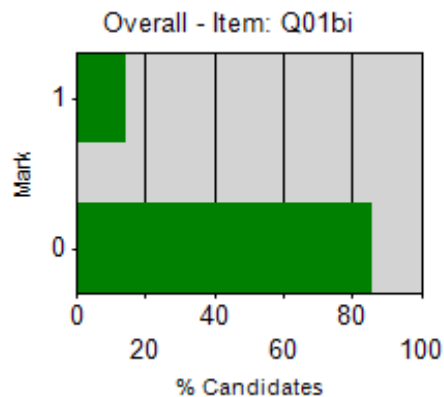
**(a) (i)** The vast majority of candidates got this question correct and most of these gave the answer "to make the drums sound more human". A good starter question with a high success rate.



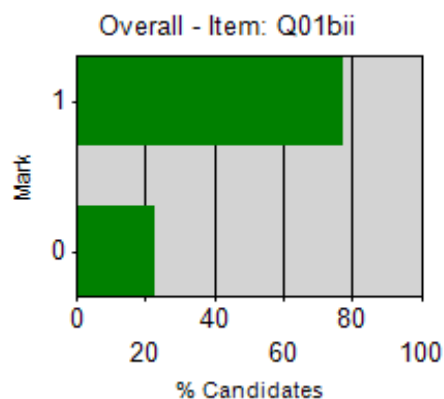
**(a) (ii)** Most candidates correctly identified the velocity in decimal as being 126, however there was less success in converting this number into binary. Common mistakes were candidates reversing the numerical order of binary, getting the number 0111111 instead of 1111110. The question clearly differentiated those with a clear understanding of MIDI values and binary translation from those who did not.



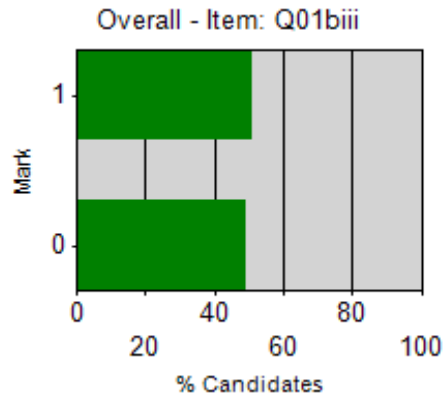
**(b)(i)** Question (b) was investigating in more technical detail how MIDI is transmitted. Most candidates wrote seemingly random commonly used computer numbers, e.g. “16”, “127”, “128”. Unfortunately, there were many candidates who misread bytes as bits, so incorrectly answered “14”.



**(b)(ii)** If the candidate understood the question stem, successful candidates divided 16383 by 2, yielding the correct answer.



**(b)(iii)** The question further tested the candidates’ understanding of how the data bytes of pitchbend function.



(c) This question asked candidates to choose an acoustic drum timbre and transpose the notes in the MIDI file so that the drums matched a 4 bar audio example.

Successful candidates were able to match all eight timbres correctly using an acoustic kit, achieving full marks for this task.

Some candidates misunderstood the task and assigned the timbres based on what would be expected in a typical rock/pop drumbeat, rather than using the drum example audio as a key to map the timbres.

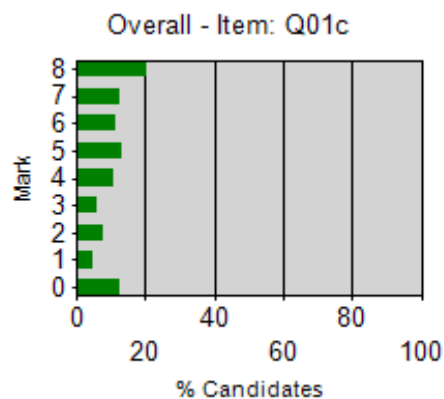
Common errors were:

- a tom assigned to the ride or vice versa
- kick/tom assigned to crash yielding a four-to-the-floor kick drum
- toms wrong way around
- rapid kicks replaced with hi hats

Some candidates remapped the drum timbres correctly in bars 32-35, but did not extend this to the full part, leading to timbres which changed part way through the pattern.

Candidates should take care not to accidentally drag MIDI notes out of time when re-pitching MIDI notes. This occurred on a few occasions, leading to one or more components of the drum kit being out of time with the rest of the pattern.

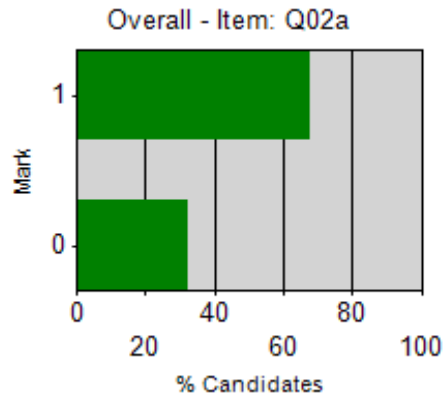
Most candidates were able to assign an acoustic drum timbre, with only a small minority of candidates choosing electronic drum timbres. Very few MIDI pianos were encountered this year, which is encouraging. There were a small number of candidates who only bounced bars 32-35, for which no credit could be given.



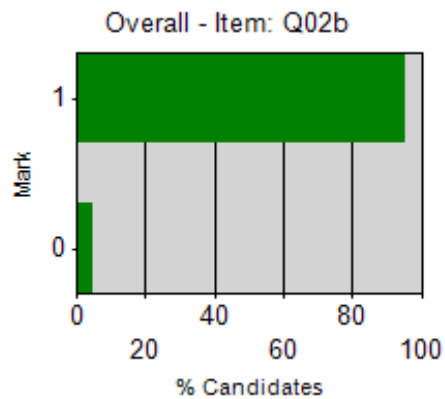
### Question 2

This question began with some easy multiple choice questions about units which candidates often confuse in their written responses. This was followed by some editing and re-pitching practical tasks.

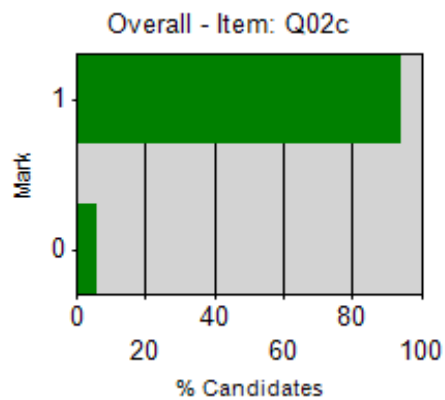
(a) In the past, candidates have often confused technical terms about volume and frequency.



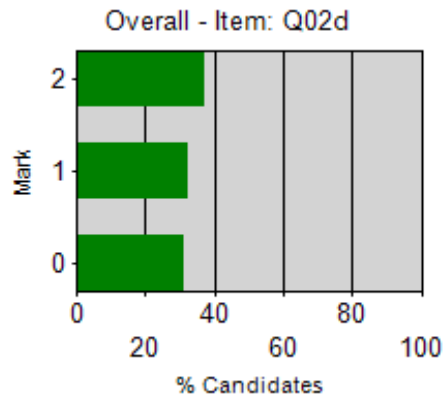
(b) In the past, candidates have often confused units about volume. However, this year, they were more successful than part (a).



(c) In the past, candidates have often confused frequency with time.



**(d)** This question had a lot of variety in answers. Often, they would identify that the guitar is distorted, however they failed to link it to the resulting high levels of noise/hum, which would have gained the extra mark. A large proportion of candidates misinterpreted the question and focused on how a noise gate works, rather than identifying the characteristics of the guitar style.

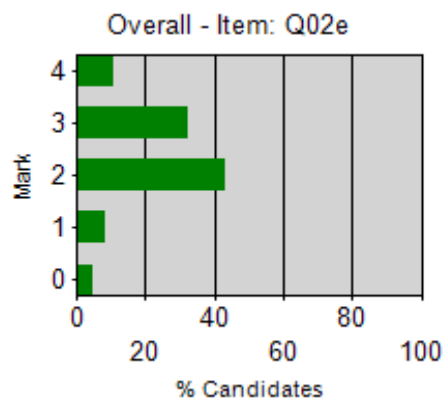


**(e)** Most candidates were able to copy the correct sections of audio to the right places, but they usually failed to create smooth edit points, therefore resulting in unprofessional clicks and crossfades to the finished audio, yielding 2 marks – the most common score.

The most common errors were:

- not include bar 9 in their bounce so noise removal couldn't be assessed
- not fading/removing the glitch at the end.

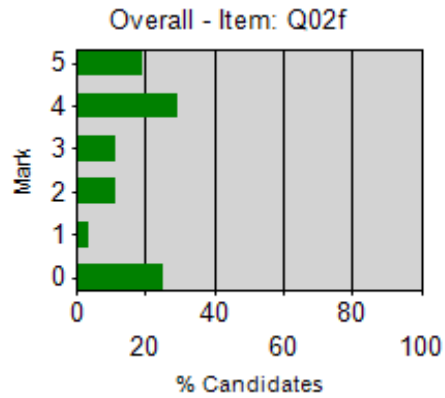
As a broad generalisation the candidates who did manage to achieve maximum marks for this question continued to do very well across the practical tasks for the entire paper.



(f) This question wasn't attempted by a quarter of candidates. Most candidates who attempted to edit the pitch did this successfully, but some made mistakes with their note selection. Candidates also struggled to apply the editing techniques required in the task in a smooth way, with very few attaining the final mark for quality of edit.

Some candidates performed the pitch shifting task using destructive editing, which had the knock-on effect of altering the pitch in bars 12 and 52.

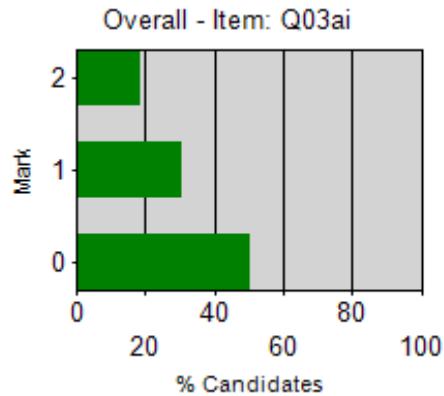
The nature of the task gave candidates the opportunity to complete it successfully using a variety of different DAW methodologies.



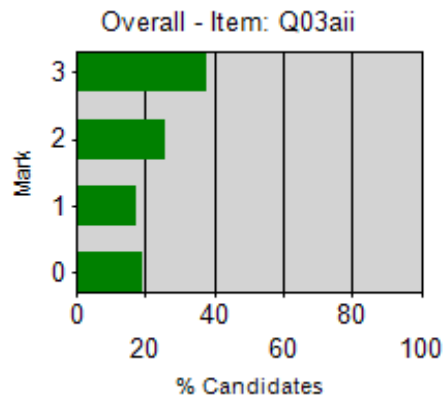
### Question 3

Question 3 explored filtering, file size and level relating to the bass part.

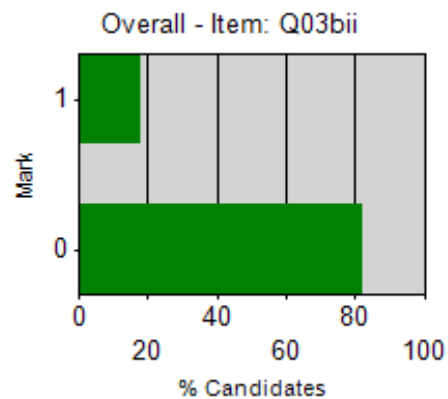
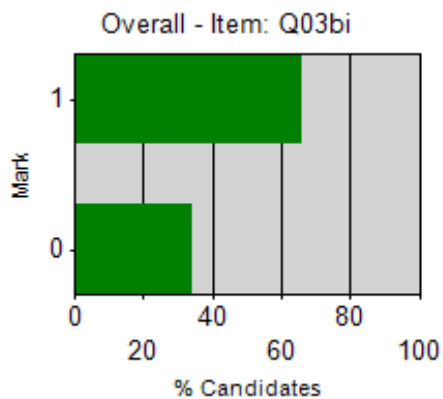
**(a)(i)** The majority of candidates were able to explain a 48dB reduction per octave. Many were also able to link this to the slope of the filter and point out the slope was steep. There were many confused descriptions that scored no marks.



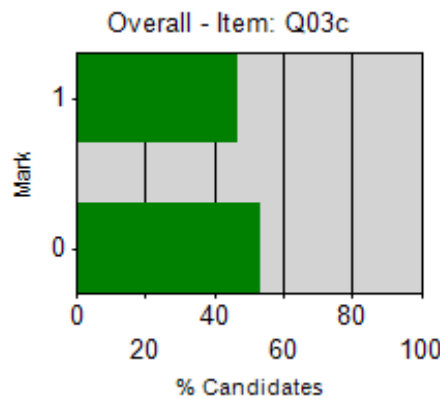
**(a)(ii)** Most candidates were able to draw the slope of a high pass filter, and most correctly drew a steep filter curve. Those who scored 2 generally put the filter cut-off too low or too high. There were responses where the slope was too shallow. Wrong answers included LPF or something else like a shelf or other incorrect shape.



**(b)** Candidates were more successful at calculating the file size of a stereo file by multiplying by two. There was less success when other factors needed to be considered in part (ii).



(c) This question tested the candidates' understanding of RMS and peak levels. This question shows that multiple choice questions can also be tricky with fewer than half scoring.

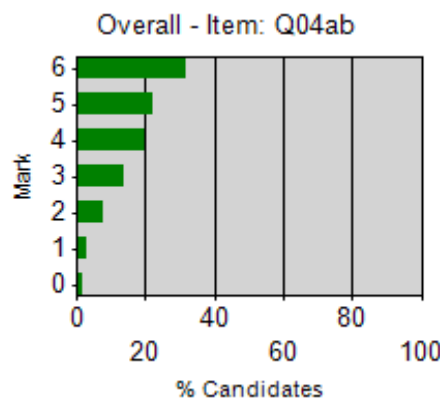


#### Question 4

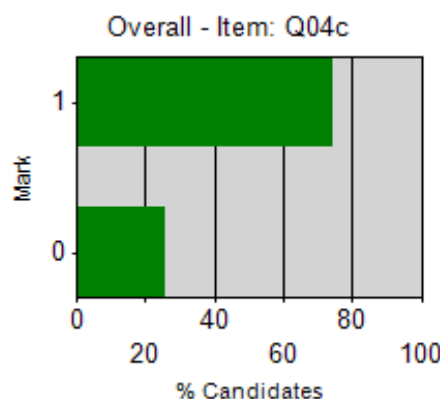
The first half of this question tested the candidates' understanding of waves and polarity. The second half was about technical specifications of recording equipment.

**(a)&(b)** Nearly all responses correctly drew a square wave. Most candidates were able to label both axes correctly although 'frequency'/'Hz' was a common mistake on the y-axis. There was some confusion on labelling the period and amplitude. A few responses correctly described the y-axis as 'amplitude' but didn't in addition indicate the amplitude specific to the wave drawn. Period was often labelled incorrectly as being the width of half a cycle rather than a complete cycle. Some responses ignored the labelling of period and amplitude altogether.

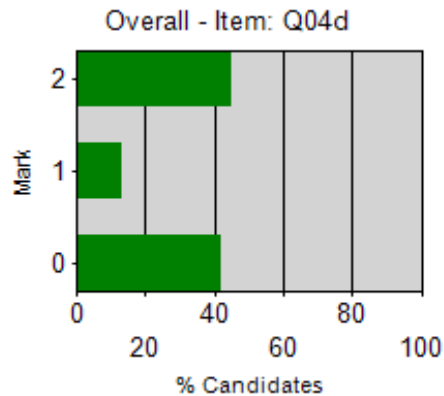
For part (b), most responses scored a mark here. Some of those that didn't had inadvertently drawn a DC offset in (a) and failed to mirror it on the graph below.



(c) The majority of responses were confidently correct. Wrong answers suggested there would be noise of some sort, or phasing.



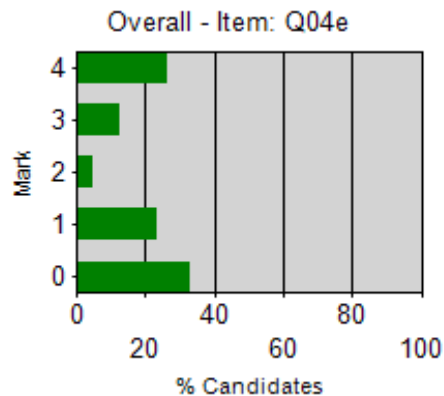
(d) Many responses gave a full answer that indicated multiple mics linked to one sound source, and many also gave valid examples, the most common being snare top and bottom. There were many mentions of drum kit overheads. Several talked confidently of M-S configuration. There were also some examples that weren't valid; 'double tracking' was one that came up quite a lot.



(e) The preceding written questions provided clues to how the noise could be removed. Surprisingly, many candidates were not able to use the audio provided to remove the noise so didn't attempt the question.

The responses ranged from using cancellation techniques, to manually cutting the audio in the gaps, to using EQ to notch out certain offending frequencies, all with varying degrees of success.

Candidates who did utilise the correct technique of using cancellation did not always score full marks if they didn't correctly match the gain of both signals, leaving some quieter noise remaining.



(f) This question was aimed at the most able candidates to test their understanding of polar response. Therefore, many candidates were confused by this question and didn't really understand it. Common errors included:

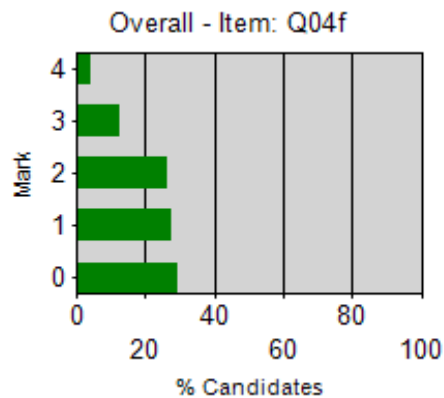
- thinking that this diagram was referring to two different microphones
- referring to how the microphone acted at different volume levels or distances of the performer
- thinking that the polar response changes according to how high or low the singer sings
- confusion with proximity effect, more bass etc.

Where candidates cleared the hurdle of understanding that the diagrams showed how polar response changes according to frequency, full marks were missed because, for example:

- not being specific enough about the increased low-frequency spill/reverb because of the wider low-frequency polar response
- not explaining the effect of the singer going off axis.

A few candidates were able to associate off-axis recordings with less high frequency response, giving examples such as reduced sibilance.

Candidates often missed the easy mark of identifying that it was a cardioid polar response.



(g) Many candidates chose to word process this longer answer question.

Candidates often produced solid responses to this question:

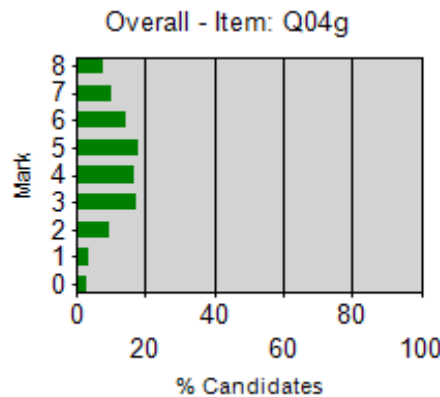
- most could identify the woofer/tweeter and the effect on frequency response
- most could explain that the frequency response of the monitors would be much wider/flatter than the mobile phone speaker
- many could explain that it is useful to test a mix on the mobile phone because mobile phones are a common medium for listening to music
- most recognised that the studio monitors were in stereo, but then failed to mention specific uses when mixing, e.g. panning the drum kit.

Often candidates repeated what they wrote about the monitor speakers, but opposite for the mobile phone speaker which rarely picked up additional marks.

Some candidates wrote conclusions or summaries which merely repeated what they'd already scored marks for, just more concisely.

Some candidates didn't attempt this question at all, which is disappointing given that there are 8 marks available here.

This question worked well as it allowed for all candidates to achieve a few marks; but the more able students were able to score high marks as they developed their answers and were able to link AO3 to AO4 (such as louder = less distortion etc).

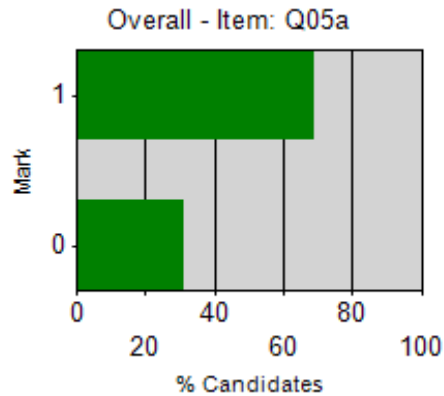


### Question 5

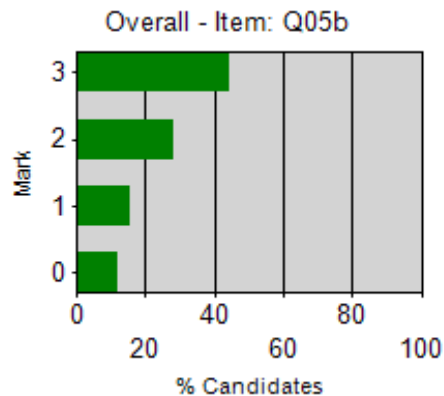
This question had a range of editing, processing and effects-based tasks to cater for a wide range of candidate ability. For example, question (a) was targeted at E candidates, and (f) was targeted at high grades for full marks though lower grade candidates could also score some marks.

Candidates should not add other creative panning, dynamic processing, EQ and effects not specified in the question because such extra processing could mask the questions that are being assessed.

(a) Most candidates did well on this, but many shared a common mistake: bar 58 was partially removed, leaving very little of the bass track to assess how well the candidate answered the question.

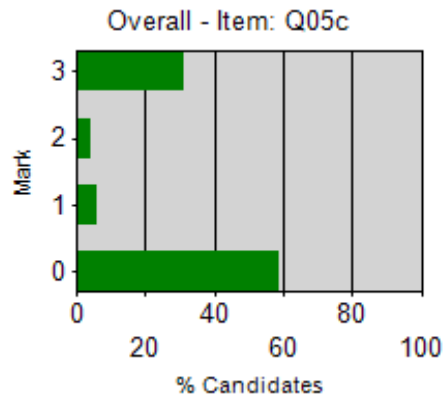


(b) Most candidates answered this question successfully. Most commonly for 2 marks, candidates didn't match the cutoff frequency with the bass part. Some candidates bypassed the filter a bar early.



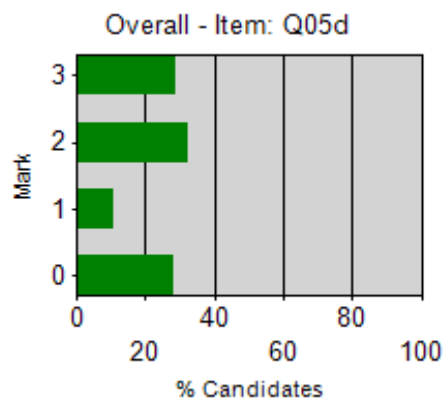
(c) This question was quite polarised: candidates generally applied double tracking or not. A small number added some kind of stereo width however it was narrow and still sounded like one guitar playing.

Most candidates scored 0 marks where there was no audible attempt, even from candidates who scored well elsewhere on the paper. It's possible that candidates copy and pasted the guitar to another track, but made no further changes thus just made it louder.

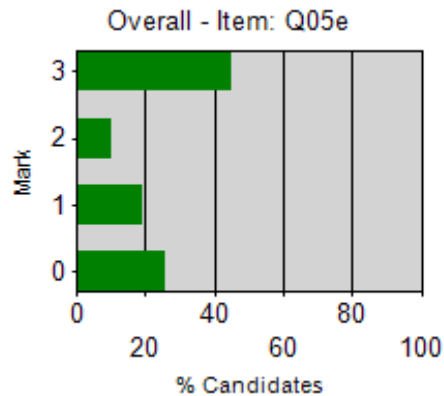


(d) The vocal part was mastered at a low volume and the performance designed so that the candidates needed to work with the threshold and ratio; they couldn't rely on presets to score marks. 0 marks were awarded if there was no clearly audible difference in dynamics. Sometimes, the vocal was mixed at such a low level that compression could not be heard clearly enough to assess.

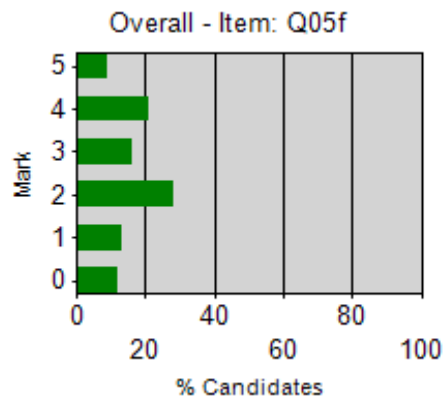
Most candidates were able to make a noticeable control of dynamics from 18-28 but some didn't control the final few bars of the verse. A few candidates effected the delay on bar 31. Some candidates did not match the volume after bar 32.



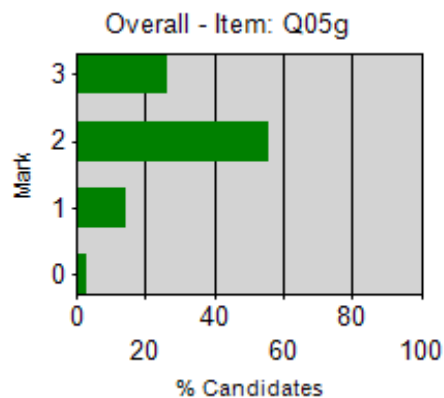
(e) This year, there was more success with sidechaining than previous years. Most candidates scored something this year. Many candidates did well on this question with a few minor glitches (e.g. bar 41 gated, bar 49 not gated). A few candidates had other bars affected with the gate not switching off from bar 50. Some candidates gated the guitar with the inverse rhythm.



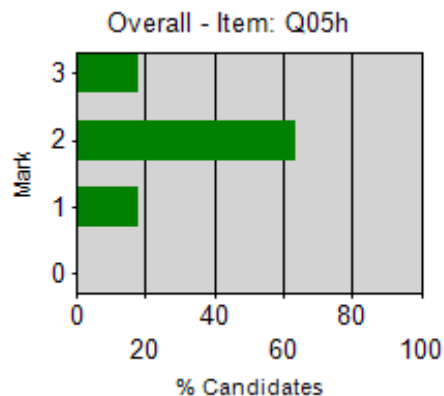
(f) Most candidates got the first mark (mono delay) and the second (minim rhythm), but many failed to automate the delay only to the word 'abyss' or set the feedback level so the delayed signal filled the gap before the drums enter. Many candidates filtered correctly with a LPF, some applied no filter, a few candidates applied another filter type.



(g) The stems are deliberately mastered at wildly varying volumes to ensure that the candidate needed to listen (rather than look at fader positions) to earn credit. Very few candidates achieved a good balance across the mix, with most gaining 2 marks due to one part being under or over balanced, most commonly the rhythm guitar was too loud, possibly because of the failed double tracking attempt.



(h) Producing a clean master without the tail cut off should be a skill that candidates wishing to pursue further study or a career within the audio industries need to be able to do effortlessly on a daily basis. The most common mark here was 2. Many candidates cut cymbal tails at the end (including candidates who scored highly elsewhere). A few candidates bounced with silences longer than 1s at the beginning.



### Question 6

Many candidates chose to word process this longer answer question.

The synthesiser picture used for the diagram is not from a DAW so would be unfamiliar to all candidates. Therefore, candidates aren't advantaged or disadvantaged depending on which DAW they use. Candidates are expected to apply their knowledge to an unfamiliar diagram/picture and extrapolate how it would sound.

This question was designed to differentiate across all of the grades, including A\*.

Quite a few candidates structure their response in AO3 and AO4 columns. Candidates are not good at identifying an AO3 or 4 point themselves. Some seemed to think an AO3 mark is gained by merely restating what is already in the picture. Also, an answer like this often has a lot of blank space on the left of the page and poorly organised scribbles crammed into the right column. Candidates would be better off not to trouble themselves with AO3 and AO4 and just enjoy showing their understanding and evaluation.

Candidates who divided up their writing into subheadings, one for each synthesiser section, provided the most concise and structured writing yielding highest marks. Logically laid out responses with clear sub-headings help examiners to credit work. For example, with triangle wave or square wave, some candidates were not clear which section of the synthesiser they were discussing so could miss out on marks even though they may have correctly identified the waveform.

8 was the most common mark. Work around this mark was usually the maximum 5 marks available for AO3 answers, naming the synthesiser sections and waveforms, plus 3 points of explanation, usually the envelope and portamento.

Many candidates did not identify what LFO/VCO/VCA/VCF represented and simply used the label from the synth.

Very few candidates understood the purpose of the master pitch control or the requirement for analogue synthesiser to be tuned.

Candidates often correctly identified the LFO but most believed it to be switched off (rather than a low speed) and to be a saw wave rather than a triangle wave. Very commonly, candidates mistakenly thought that the LFO was something audible rather than a control signal. This led to some very confused answers that went on for several paragraphs about how the LFO was good for bass because it was low frequency, or confused paragraphs about the link between LFO and VCO. Such

confused writing could not be credited. It was very rare to see candidates that fully understood that the LFO was controlling the pulse width modulation of a pulse wave.

Candidates were often successful in discussing the sub-oscillator.

When discussing the filter many learners misidentified it as a boost/cut rather than an LPF and would discuss what resonance was but didn't discuss its impact on the sound so many marks were missed.

The envelope section was most successfully answered for nearly all candidates. The most common AO4 marks were for describing the fast attack and release.

Many candidates discussed volume but simply stated that the volume was loud and why this would be important in terms of balance with other instruments, e.g. bass sounds need to cut through the mix so should be at full volume, rather than discussing gain structure.

Very few candidates understood that the pitchbend was not enabled, and that pushing the pitchbend wheel forward would yield vibrato.

There was some musical discussion about monophonic synthesisers being good for bass and their role in ensembles showing pleasing awareness of a synthesiser's role in a band.

Lower scoring candidates often stated what a setting was or that a setting was suitable or not but didn't give any explanation as to why or what a better setting would be.

The most successful candidates were precise with their use of technical vocabulary, and were able to demonstrate an impressive depth of knowledge, often receiving a lot of credit for a single, well-constructed sentence.

