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# **GQ Principal Examiner's Report**

Summer 2022

**Music Technology GCE 8MT0 04**

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## **Producing and Analysing**

This is the third time the paper has been sat for external examination, the last being 2019 with a 2 year suspension of externally assessed exams due to covid 19 pandemic.

There are 6 questions. Q5 is a mix task in a number of sections. Q6 is an essay evaluation of a recording or producing scenario. The other questions contain a mix of questions and audio or midi production tasks. There are three questions with audio or midi production tasks in addition to the final mix.

### **The paper total is 84 marks.**

This year centres were given advance information about the topics in the essay question and the highest scoring question in the rest of the paper, as a support method for students who have had their learning disrupted due to covid 19 restrictions.

The essay question is worth 16 marks. Centres will note that the marks are split between AO3 and AO4. A maximum of four marks of the 16 are awarded for AO3 answers, the rest are for the evaluative AO4 answers.

Audio and midi production tasks were handled well by a pleasing number of students. Copying the vocal phrase and re-tuning the parts and re-creating the bit crusher effect on vocals were least successful.

Where parts are not soloed, metronome left on or additional effects/processing added to that required in the question, the work cannot be assessed in certain areas. The mark scheme shows approaches for each task.

Other problems arose through students not reading the instructions. Audio/MIDI incorrectly lined up, or only bouncing a short section of the keyboard part.

Work was uploaded via the learner work transfer system in accordance with the administrative guidance document. This was the first year of using this system, and it seemed to be handled well by all centres. Correctly named files were uploaded without any additional files. One centre uploaded Logic project files but these are not needed and will not be used in the assessment.

Occasionally there were additional files or incorrectly named files. It can be difficult for the examiner to determine which task is which in these cases. It did appear that there were that there were fewer errors than has been the case in past seasons when CDs were used.

This report should be used in conjunction with the published mark scheme.

**Q1. 13 marks. Drum edits 4 marks.**

a) i) Nearly all candidates got 1 mark.

a) ii) Most also named a suitable style and got 1 mark.

b) The most common error was copying the wrong pattern in bar 19, using the same pattern as bar 20. Most showed good skills in trimming the file and inserting the new section in time, mostly without glitches or clicks.

c) i) There were more wrong answers to this than in part a), though many were still correct.

c) ii) A good number of responses identified the high pass filter but fewer got the extra mark for describing the sweep/increasing cut off frequency.

d) Responses gaining all 4 marks were rare. The syn drum gave the most trouble, followed by hi hats. The kick drum was sometimes wrong even when all the others were correct.

b) Often scored 2 or 3 marks. Problems included copying two notes from b25 instead of one: untidy edits with clicks/glitches. Most managed to remove the noise successfully.

**Q2. 13 marks. Keyboard MIDI edits – sound selection/matching (4 marks) and volume ramp (3 marks).**

a) i) Most got saw correct.

a) ii) Many knew this was not a single oscillator sound and most gave a sensible number, 2 to 4 was acceptable.

b) Many candidates got the saw waves with detune correct, and transposed the part correctly. The wrong waveform did happen but was fairly rare. Errors occurred by having effects present such as reverb or delay. Sometimes the transposition was only partially completed and the higher notes were not changed. A handful of students used a monophonic synth patch which did not play the complete chords.

Occasionally students would only bounce the first section as shown in keyboard example when the whole part was required. IN this case the assessment was made from the part in q5 final mix but of course not all marks were accessible since the part was not solo'd.

c) Often done well, problems were uneven volume ramp and not reaching a suitable level by the end of the chord. Some students failed to get a suitable final level because the volume envelope of the patch had a fast decay.

d) i) Very few got two marks, though most got 1 mark for mentioning thickening the sound. Hardly any mentioned the stereo width/movement.

d) ii) This question was not answered well. Only a small minority referred to LFO or modulation cycle time and even fewer mentioned vibrato. This is a fairly straightforward technical question but many answers referred to envelopes or pre-delay which are a different thing entirely.

### Q3. 19 marks. Vocal processing & edits 7 marks.

a) The majority of students knew this.

b) A majority of students managed to complete this successfully. Sometimes there were glitches from the edit, and a few did not get the timing right either of the three Is in the right bar or put it in another place entirely.

Sometimes the question was not understood and other edits to the phrase were made such as recreating the stutter on **wanna** like in the bar before.

c) Full marks were rare. Many said distortion, and some mentioned reduced bit depth or bit rate. It was rare to see mention of lower sample rate, digital artifacts, or reduced HF content. Some responses mentioned the similarity to old computer games and older digital technology.

d) Most students successfully added bit crusher to the vocal with a suitable level. Many did not get four marks however as the effect needs to be drive like the example, and only a handful of responses managed to notice and recreate this.

e) i) Many got all four marks for this. Sometimes the y axis amplitude was incorrect but everything else correct gaining 3 marks out of 4. Some students confused the x and y axes and gained no marks despite naming the correct parameter and units.

Only a few said frequency was in kHz – this is incorrect as the scale shows 1k etc.

e) ii) A decent number identified this as a band pass filter, though many did not, instead going for low or high pass. Some answers described the combination of low and high cut (or pass) filters which shows good understanding.

e) iii) Most said this is the human hearing range. Surprisingly few got the second mark for observing that audio systems do not generally produce frequencies outside this range.

**Q4. 5 marks.**

a) Surprisingly few identified this as pitch bend.

b) i) Full marks for this was very rare. The most common answer was that bass is a foundation of the mix, followed by mentioning of stereo field appearing unbalanced if bass is to one side.

The more technical answers about low frequencies having less directional information than high frequencies or having more power and needing to be shared on both sides especially on large systems were rare but did appear.

b) ii) Most identified the kick drum as another centrally panning element in the mix.

**Q5. 18 marks. Final mix in five sections, 3 marks each except b) 6 marks.**

a) Most applied a reverb with a suitable level. Many were not gated.

b) A good number completed this successfully, though many encountered problems. Errors occurred with incorrect pitch shift, clicks and glitches, sometimes the phrase before was copied but not pitch shifted. Some did not attempt this at all.

c) Usually this was done well. Issues were wet level being too high, too many repeats. The wrong delay time was unusual.

d) Quiet bass was the most common issue, or keyboard dominant. Generally handled well with suitable vocal level.

e) Click at the end or long lead in were common. Out of sync parts also occurred at times and is assessed here. Distortion was rare. Output level usually suitable though some quiet submissions did occur.

## **Q6. 16 marks.**

This question was signposted in the advance information, and it was clear that centres had studied the topic. Marks in double figures were fairly common; many candidates scored at least 6 or 7.

12 marks are for AO4. This means students need to be offering explanations of why processing is successful or unsuitable to gain these marks.

Most responses included discussion of the monitor speakers. This included the presence of tweeters and woofers though not always linked to the frequency ranges they reproduce. Many students mentioned sub woofers which was odd because there were none in the picture. Not many used the words near field or full range to describe the two different sets of speakers, though some made the point that the speakers were used for different purposes. Most commonly this was said to be that the small speakers are close to a commercial or home equipment sound, while the full range speakers were loud.

Few mentioned the overall frequency ranges reproduced by the speakers, and not one answer mentioned when the speakers are used: near field for most of the monitoring during mixing and recording due to very flat frequency response and clear transient response, full range for checking and impressing clients.

Most also mentioned the positioning of the speakers, the fact that they were angled and something about positioning, most often that they formed an equilateral triangle, or they should do. Some noticed that the near field monitors were quite close together. The most common technical observation was that the near fields positioned on the desk could cause vibrations and acoustically absorbent pads or stand would help. Almost no-one mentioned reflections from the desk, though quite often spoke about the speakers being distant from the walls.

Full range speakers were identified by many as being mounted in the wall, but no coherent explanations were given. A few mentioned the ports but again no real explanation of why they are used and the problems they can bring. It was rare to see the term closed box design with reference to the near fields.

Responses that mentioned speakers' frequency response or transient accuracy were rare.

Most mentioned stereo (though some spoke confusingly about surround sound) and there was often some talk of amplification but usually that speakers might be active, not often regarding quality and suitability for monitoring work e.g., low harmonic distortion.

Some responses gave numbers for the frequency range covered by different speakers, but again this was often misguided due to mention of subwoofers. There was not a single mention of cross overs.



A lot of easy marks were missed in relation to the monitors – positioned at ear high, linked to on-axis projection of mid & high frequencies; near fields used for critical mix decisions; accurate frequency response; size of drivers; type of tweeters (soft dome/horn); directional behaviour of high frequencies.

Responses about the acoustic environment usually spoke about acoustic treatment for absorbing sound energy, and hence reducing reverberation, and often identified the panels to the side and above the desk. The angled corners were also often mentioned and linked to reducing reflection that could create standing waves or removing flutter echo.

Only a small number referred to the acoustic treatment above the window, with the small holes. Both this and the side and ceiling treatment are resonant tuned absorption that is commonplace in many studios including Rockfield and BBC broadcast studios. A few students did mention that the absorbers placed with a gap between them, and the wall (visible on the ceiling panels) increases the absorption which showed excellent understanding.

Some students mentioned diffusers but there are none present in the picture.

The principle of bass traps and their function in reducing room nodes and concentration of low frequency energy in the corners was mentioned and again this showed good knowledge and understanding.

Many responses used the word 'sound proofing' which is not correct in the context of acoustic treatment. Sound proofing is a vague term at the best of times but refers to the reduction of transmission of sound through building structures. Studios do not necessarily need to be sound proofed, except the live room needs some isolation from the control room. This was mentioned by some, usually in relation to the presence of the window. Very few of those mentioned that the glass can be quite reflective for HF and that transmission is reduced by triple glazing.

Many mentioned the wooden floor and the number of hard surfaces and the potential for reflection. Only a few made the point that a control room does not want to be completely acoustically dead as this is an uncomfortable environment for most people.

Some students wrote about the mixing desk and its function, how tidy or not the cables were, the fact they could not see a mouse or keyboard or any microphones, and other general studio observations, which were not answering the question about monitoring equipment and environment.

## SUMMARY

Audio tasks yielded the greatest success across the ability range. Clearly these skills are being developed quite effectively by the majority. Candidates struggle to explain technical processes or display detailed technical knowledge. Where they can gain marks by mentioning a few buzz words they usually do fairly well, but this does not link to deeper thinking and applying knowledge to unfamiliar scenarios.

- Good skills in practical tasks of audio editing, applying effects, creating a mix.
- Good basic synthesis skills.
- Technical knowledge best with filters rather than other effects.
- Successful coaching on studio monitoring and acoustics but little in depth understanding

Overall impressions of the paper:

- Audio questions were done quite well, so perhaps overall students had spent more time preparing for this than in the past, and have the benefit of several past papers and mark schemes to practice on now

- Centres had clearly prepped students for the essay, and many could talk about basics of different drivers, monitor positioning, and come up with something about acoustic treatment. This last one was variable in quality, and some students had clearly been taught to the word soundproofing which is meaningless and not the important consideration for a control room.

- I can't comment on overall standards as with the marking split in two it's not possible to get an impression of complete candidates.

- I can't comment on some questions as they were not marked by us.

## **ADMINISTRATION**

1. Some teething problems with new online systems but most centres seemed to cope and uploaded the correct files with the correct naming convention.

2. Use of incorrect MIDI files

There were no cases this year.

3. As an end user of the various software employed by Pearson – ePen, SAMOS, Online Marking, LWA, Adobe Connect – they all leave a lot to be desired. There are genuine concerns over health & safety and wellbeing due to RSI from mouse clicks – almost always the only option for data entry/navigation - and extended screen times.

