Teacher Resource Bank

GCE Music

MUSC6 Guidance

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Dr Michael Cresswell, Director General.

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There are recordings to accompany this document.

MUSC6: A MUSICAL PERFORMANCE

General

This unit is externally examined. The candidate's performance is to be recorded on CD/ mini-disc and sent to the AQA examiner by 15 May, accompanied by:

- the relevant *Candidate Record Form*
- copies of the music in the form of either a score or lead sheet/detailed guide or recording of the original work
- any additional information as required by the technology-based options.

Candidates must offer two or more contrasting pieces and should ensure that their choice from the available options enables them to display their strengths across a performance of 10–15 minutes. They must make clear on the *CRF* their precise role in the performance.

OPTION (a)

Solo acoustic performances

Candidates must include contrasting pieces within their programme in order to demonstrate their ability to play music contrasting in style, technique, period and/or approach. Pieces should be chosen with a level of demand of Grades 5–8 but also within appropriate technical, expressive and interpretative ranges. The majority of candidates who follow this option will, undoubtedly, be competent performers and should take care to put together a varied programme and practise as often as possible with their accompanist, the backing track or other players as necessary.

Improvisation can form a part of the performance but, whenever this occurs, the candidate must make clear the basis of that improvisation, be it a chord sequence, a specific scale, a melodic or rhythmic fragment, a melody or a riff.

Performances can be attempted when ready and re-recorded if necessary, although only complete performances must be submitted, ie only a single take should be submitted to the examiner. Candidates are advised to take advantage of the flexibility of this unit and record their performances or each item in the final programme when their preparation is complete.

It is not practical to suggest a schedule for this option, as different candidates will be ready at different stages: the vital thing is to ensure that candidates make their recordings when all rehearsals are done and the work is thoroughly assimilated. It is useful to make a recording early in the year if possible – not necessarily of the intended repertoire. This can provide an alternative recording in the event of problems arising later on.

Candidates can perform one or more of their own compositions if the standard of technical expertise and expressive control is suitable.

Candidates may include performances on different instruments in their programme but it is important to consider whether this is in the candidate's best interests. No additional credit is given for offering more than one instrument but, if a candidate is equally proficient on more than one, there is no reason why he/she cannot plan their recital to include this. It should be borne in mind that the recital must enable the candidate to demonstrate variety of style, technique, period and/or approach.

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OPTION (b)

Technology-based performances

Candidates will present performances under one or both of the following two headings, though, as with acoustic performances, there must be variety within the submission.

Technology-based Performance 1 – Sequencing

This requires candidates to use a combination of sequencing and multi-track/close microphone recording to create one or more recordings. The following conditions must be met:

- the minimum number of independent parts is six and the minimum length of any **single** piece is 48 bars
- pieces in a classical style must feature a soloist
- pieces in pop/jazz style must feature a vocal line
- there must be evidence of sound sources such as plug-ins or a sound module
- at least one track must be VSTi (ie a 'virtual instrument' such as *Hypersonic*)
- if the candidate is offering a programme made up entirely of Technology 1 performance(s) at least one recording should be of a pop/rock/jazz ensemble with at least six vocal/instrumental parts, with the inclusion of a drum kit.

Candidates must provide full details of all equipment used to achieve the performance and this must include the use made of the facilities available within the hardware and software used.

Technology-based Performance 2 – Multi-track/close microphone recording

This multi-track/close microphone recording option extends the AS requirements in the following ways:

- the minimum length of any **single** piece is 48 bars
- there must be a minimum of six independent parts and at least one of these must be a vocalist
- there must be evidence of appropriate use of time-based and dynamic effects
- there must be evidence of the use of the stereo field/panning at mix down.

Candidates must submit:

- the initial recording as made by the candidate
- the final mix
- full details of the equipment used and of the recording process.

It is essential that candidates experiment as much as possible with their intended group of six or more vocal/instrumental lines and really get to know the extent of what they can do in terms of manipulating the original recording. They should do this before planning in detail what will be the precise format of the final submission. In particular, they should work regularly with the larger groups and/or additional/different technology requirements which this unit encompasses.

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OPTION (c)

In this option the candidate can choose to mix acoustic and technology-based performances. Each performance will last at least 5 minutes and can be either a single piece or a short programme of two or more pieces. The variety within this option comes from the mixing of the two modes of performance but there can, if desired, also be variety within each performance programme. The technology-based performance can be Technology 1 or Technology 2; if a Technology 1 performance is included, it need not necessarily be of a pop/rock/jazz ensemble.

Submission of recordings

All recordings for each candidate must be presented on CD/mini-disc with the work of each candidate recorded on consecutive tracks. A track list must be provided. Centres should ensure that the best possible recordings are obtained, especially with regard to:

- balance (ie so the candidate's part does not overpower/is not overwhelmed by other performers)
- audibility (ie so that the performances can be easily heard)
- distortion (ie so that the recording level does not lead to a distorted recording which renders assessment difficult if not impossible).

Usually, such results will be obtained by doing short 'test' recordings before undertaking the full performance of any piece and, where necessary and appropriate, adjustments made to the position of microphones and/or levels.

SOLO ACOUSTIC PERFORMANCES

The recital/programme is assessed as a whole and, within its choice of items, there must be contrasting pieces to demonstrate the candidate's ability to perform across a variety of style, technique, period and/or approach.

Level of Demand

The total mark for this unit is 60 and just 6 of these marks reflect the music's demands. Ideally, these will be of at least Grade 5 standard (or the equivalent if they are not set by any accredited examining board).

The Assessment Criteria on page 28 of the Specification are very precise, with pieces below Grade 5 gaining a maximum of 1 mark, through to those consistently at Grade 8 gaining 6 marks. Where there is a mixture of different levels of demand within a recital, then a balance of these varying standards will be reflected in the final mark awarded.

However, it is hoped that candidates will **not** restrict their choice of repertoire solely to those found within graded examination lists but will explore a wider range.

It is very important that candidates choose music which they will be able to play accurately and with due regard to its stylistic, interpretative and communicative demands. Decisions made in order to gain the maximum level of demand mark may well result in performances where the candidate struggles to show mastery of the technical, interpretative and communicative features of the music. Better, where necessary, to sacrifice two or three marks in this area if this leads to accurate, secure and fluent performances where the candidate is able to convey the style and character of the music through a committed, convincing and assured performance.

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The Assessment Criteria for the three main elements **Accuracy**, **Communication** and **Interpretation** fall into four bands, each containing various key words or phrases.

Accuracy

18–14 *No discernible flaws* for the top mark, *a very occasional slip* for 17–16 marks. *Occasional slips* not affecting *the overall fluency of the performance* for 15–14 marks.

Intonation will range from *secure* at the top of this band to *virtually secure* as the mark moves lower.

Observation of *the composer's expressive and performance directions* will be expected: these are the dynamics, tempo markings and articulation as found on the score or as are integral to the style of the music.

13–9 *Largely accurate and slips or inaccuracies will not affect the overall fluency* for 13 marks.

Slips and problems with *intonation, rhythm and/or tempo* will increase as the marks move lower down this band.

With all performances in the band, it is expected that *the majority of the composer's expressive and performance directions will have been observed.*

8–5 A*chieves consistency in most elements* but *may lack variety, technical competence or fluency*
Within this band will fall those performances where elements of the music are compromised. It may be that intonation will be poor for whole sections, and/or the candidate will be unable to meet some of the technical demands of the music, such as faster rhythms, articulation, dynamic contrast.

More frequent slips

The basic outline of the music should be appreciable to the listener.

In general, the composer's expressive and performance directions will have been observed.

As slips increase, fluency, technical competence or variety diminish, and the composer's expressive and performance directions become less well observed, so the basic outline of the music will become less recognisable and marks will move to the lower end of this band.

4–1 A performance which *achieves only limited consistency and fluency.*

Little or no application of the composer's directions for expression or performance detail.

The music may be scarcely recognisable – this would point to the lower marks in the band.

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Communication

18–14 *Committed, assured, convincing and well-projected … total involvement*
Where these are fully present, the top mark will be awarded. As there are moments within the performance where this high level is slightly lacking, so the marks will move towards the lower end of this band.

13–9 *Some level of commitment ... generally assured … an overall sense of conviction*
Within this band will come performances where there are positives but there will be a lack of overall confidence, resulting in performances which fall increasingly short of expectations as marks move further down this band.

8–5 *Performance will lack conviction and commitment on occasions*
Although some parts of performances placed within this mark band will show some level of conviction, commitment and confidence, there will be others where there is a lack of assurance, resulting in performances which, overall, fail to convince.

4–1 *Limited conviction* … the performance may be *an anxious experience for performer and listener*
Within this band, candidates will show only limited involvement with the music and will often show very little, if any, sense of confidence in their own performance.

Interpretation

18–14 *A mature understanding … mastery of the techniques demanded*
At the top of this band, candidates will show a full understanding of performance techniques in relation to the period and genre of the music chosen. The tempo will be appropriate and there will be clear attention to the composer's intentions, together with evidence of a personal interpretative input, shown, perhaps, through the use of dynamic shading or a particular tone quality.

13–9 *Style and tempo appropriate to the music … retain a sense of the character of the music*
Within this band will come the performances where the understanding of the music's stylistic requirements in relation to period will be less evident at times. The overall performance will still be played in the spirit of its time but, as the marks move towards the lower end of the band, there will be some lapses. It might be that accents are overdone, that trills are performed incorrectly for the period or that pedalling is used inappropriately.

8–5 *A general understanding*
Performance details will be followed, although their interpretation may lack subtlety.

Limited sensitivity
Weak tone may inhibit projection of detail while performance indications may be present only inconsistently.

Performances placed in this band may well compromise the composer's tempo indications because of the technical demands of the music.

4–1 *Rudimentary sensitivity*
Marks will be awarded at the top of this band to reflect some attempt at meeting performing and expressive details but tone may be weak and control lacking.
At the lower end of this band will be placed the weakest performances in terms of their ability to show sensitivity to the demands of the music.

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TECHNOLOGY-BASED PERFORMANCES

Candidates can choose either of these options or, they can include one or more pieces which meet the requirements of Technology 1 and one or more which meet the requirements of Technology 2. It is still important to ensure that there is variety within the submission: this could be of style, genre, mood, or ensemble.

When deciding to follow one or both of these options, careful consideration must be given to the full implications of resources. In **Appendices B, C** and **D** some guidelines and advice are offered regarding practical considerations and equipment, and an explanation of some of the terms used within this option is provided.

A list of useful books and websites for this unit can be found in the *Resources List* in the Teacher Resource Bank.

Technology-based Performance 1 – Sequencing

This performance is assessed on:

- accuracy of pitch and rhythm
- use of timbre, balance and panning techniques
- evidence of close attention to performing and expressive detail
- awareness of style required
- ability to use the facilities available within the software and hardware to produce a valid result.

Candidates must provide a recording on CD/mini-disc and information about the equipment used, including the various facilities available within the hardware and software.

Each of the five areas of assessment is marked out of **12**.
The criteria for each mark band – consisting of a range of three marks – are set out succinctly within the mark scheme (see the next page for these descriptors and some additional explanation/clarification).

To be awarded the top mark within a band, candidates will have met its requirements in full. As these requirements are met to a lesser degree, so the mark will move down to the middle or lower end of the band.

A possible mode of presentation for this performance option is given in the exemplar performance on page 17.

In addition to this table – or any other mode of presentation which gives the required information – candidates must also:

- give information as to the process of gaining the final mix
- identify the software/hardware used
- identify the facilities available within them.

Advice as to how this might be approached is set out in *'A Guide to Writing an Explanation to Accompany MUSC6: Music Technology Coursework'*, which can be found as a separate document in the Teacher Resource Bank.

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Assessment Criteria for Technology-based Performance 1 – Sequencing

Accuracy of pitch and rhythm

12–10 *Excellent accuracy of pitch and control of all rhythmic elements to produce a musically satisfying recording.*

You will need, if necessary, to adjust the recorded pitch so that it will come in line with that of other instruments and MIDI channels used, possibly also using the 'transpose' function which is a feature within most sequencing packages. Rhythmic accuracy from MIDI tracks - perhaps some use of the quantising facility will be needed, while rhythmic accuracy from players/singers on audio tracks will necessitate careful practice and rehearsal. Having to use a VSTi should not greatly increase problems.

9–7 *A few minor slips which do not inhibit the overall musicality or fluency of the recording.*

The main thing within this mark band is that *overall musicality and fluency* are retained, despite a few slips. Increasing numbers of slips will move marks down within this band and will, if too regular or if they start to impinge on the two key elements, move the work outside it.

6–4 *More significant errors, affecting the overall sense of ensemble.*

Within this band, there will be passages where the overall sense of ensemble is compromised; however, the performance will still retain a sense of musicality and there will be some fluent sections.

3–1 *Significant lapses, resulting in an unmusical performance.*

Weak performances will be placed here, characterised by a lack of overall attention to matters of pitch and rhythm, resulting in an unmusical performance which lacks fluency.

Use of timbre, balance and panning techniques

12–10 *Judiciously chosen timbres set within a well-balanced and effective recording.*

Through work at the multi-track recorder and/or at the sequencer, candidates will ensure that the recording is well balanced with no part either overpowering or inaudible. Panning techniques should be used well to separate the tracks to produce a 'spacious' sound and an effective recording.
The final recording will, within the style of the chosen genre, combine appropriate timbres, carefully considered in terms of meeting the stylistic requirements of the genre and blending/combining well.

9–7 *Appropriate timbres, mostly well-balanced and with some evidence of use of panning.*

Timbres suited to the genre will have been chosen and there will be evidence of attention to balance and panning which have been, for the most part, successful. As lack of care is more evidenced, so the mark will move towards the bottom of this band.

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6–4 *A recording where most timbres are well-chosen but where there are inconsistencies in the balance and only limited use of panning.*

Most timbres will have been well-chosen but balance and panning will show increasing evidence of lack of attention and/or misjudgement.

3–1 *Mostly inappropriate choice of timbres and little sense of balance or evidence of use of panning.*

Timbres will have been chosen which do not really suit the genre; there will be little evidence of attention to balance or panning, reducing to virtually none at the bottom of this band.

Evidence of close attention to performing and expressive detail

12–10 *Comprehensive evidence of close attention to all aspects of performing and expressive detail to create a musical performance*

Close attention is shown to matters of dynamic contrast, articulation, phrasing, shading and tempo control. There will be clear aural evidence of this in the recorded performance. Steps taken to affect these areas will be set out within the commentary.

9–7 *Effective use of performing and expressive detail, with broadly successful articulation, phrasing and use of shading.*

The key term here is *broadly successful*.

6–4 *Some attempts, not always successful, to use performing and expressive detail to produce a musical performance. There may be inconsistencies in the application of dynamics, articulation, phrasing and tempo.*

This band will reflect those recordings where success is inconsistent.

3–1 *Limited or no attention to performing and expressive detail, resulting in a recording characterised by a lack of dynamic contrast and inconsistencies in articulation, phrasing, shading and tempo.*

Into this band will fall those performances characterised by a lack of any real attention to performing and expressive detail.

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Awareness of style required

12–10 *Complete awareness of the stylistic requirements of the music and the ability to achieve this through the careful editing of data.*

Complete awareness of the characteristics of the chosen genre plus an understanding of how to interpret them will be ably demonstrated within this band.

9–7 *Broadly successful creation of required style.*

Key word: *broad.*

6–4 *Some sense of the required style but achieved inconsistently.*

Key phrases: *some sense of style*; *achieved inconsistently.*

3–1 *A basic transcription of the music with limited or no sense of the required style.*

Limited or no sense stylistically.

Ability to use the facilities available within the software and hardware to produce a valid result

12–10 *Complete understanding of measures needed to use the facilities available within the software and/or hardware to produce an authentic recording*.

Into this band will fall performances where candidates have shown the ability to make full use of the chosen software and/or hardware to produce what is referred to as 'an authentic recording'. Having identified what the software and hardware can do, these properties are comprehensively used to effect a final recording which reproduces and, where appropriate, enhances the original sounds and performance situation. Recordings which have successfully produced authentic/realistic recordings will be placed here.

9–7 *Broad understanding of the measures needed to use the facilities available within the software and/or hardware to produce an authentic recording and mostly successful application of these facilities.*

Key terms: *broad understanding*; *mostly successful application*.

6–4 *Some understanding of the measures needed to use the facilities available within the software and/or hardware to produce an authentic recording but only partial success in their implementation.*

Key terms: *some understanding*; *only partial success*.

3–1 *Limited understanding of the measures needed to use the facilities available within the software and/or hardware to produce an authentic recording and little or no evidence of success in their implementation.*

Key terms: *limited understanding*; *little or no evidence of success*.

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Technology-based Performance 2 – Multi-track/close microphone recording

This performance is assessed on:

- balance
- dynamic range, including use of compression
- manipulation of the mixing desk
- use of effects such as reverb, delay, etc.
- quality of the recording across a wide range of frequencies

The candidate may:

- be one of the performers,
- perform all the acoustic lines, *or*
- confine his/her role to the recording and subsequent editing/mixing down of the initial recording.

Candidates must provide a recording on CD/mini-disc and information about the equipment used, including the various facilities available within the hardware and software.

The performance is assessed on the candidate's manipulation of the initial recording to produce the final mix: it is the presence of both versions plus the written account which form the total submission.

Each of the five areas of assessment is marked out of **12**.
The criteria for each mark band – consisting of a range of three marks – are set out succinctly within the mark scheme (see the next page for these descriptors and some additional explanation/clarification).

To be awarded the top mark within a band, candidates will have met its requirements in full. As these requirements are met to a lesser degree, so the mark will move down to the middle or lower end of the band.

A possible mode of presentation for this performance option is in the exemplar performance on page 18.

In addition to this table – or any other mode of presentation which gives the required information – candidates must also:

- give information as to the process of gaining the initial recording
- give information as to the ways in which this was edited, manipulated and refined to produce the final mix
- identify the software/hardware used and the facilities available within them.

Advice as to how this might be approached is set out in *'A Guide to Writing an Explanation to Accompany MUSC6: Music Technology Coursework'*, which can be found as a separate document in the Teacher Resource Bank.

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Assessment Criteria for Technology-based Performance 2 – Multi-track/close microphone recording

Balance

12–10 *Excellent sense of balance throughout the recording.*

Parts will be manipulated to achieve a clearly audible balance within the ensemble.

9–7 *Occasional miscalculations as to balance, increasing where a mark of 7 is awarded.*

On occasions, the balance will not permit clear aural discrimination of the parts; as this increases, the mark will move to the lower end of this band.

6–4 *Sections of poor balance; areas where important features are unclear.*

The key feature here is that *sections* of the recording will be poorly balanced, meaning that individual lines will not come through. As the number and/or length of these sections increases, so the mark will move down within this band.

3–1 *Generally poorly balanced; much of the detail of the music is obscured.*

Recordings placed here will be *poorly balanced* for the majority of the time with lines *obscured*.

Dynamic range, including use of compression

12–10 *Excellent management of dynamics in ways completely appropriate to the music.*

The two key elements here are that there will be obvious evidence of a wide dynamic range and that this will be entirely in keeping with the style/genre of the music.

9–7 *Occasional miscalculations of dynamic and/or a more limited dynamic range.*

At times, dynamics may change too abruptly, lack sufficient contrast or there may be a rather limited range of dynamics in evidence.

6–4 *Sections where the dynamic range is miscalculated and/or very limited.*

Within this band will be placed recordings where the range of dynamics is limited for sections of the recording or where the use of dynamics is badly managed.

3–1 *Mostly inappropriate choice/use of dynamics/dynamics which adversely affect the impact of large sections of the performance.*

Recordings placed here will display a poor use of dynamics in relation to the genre, a poor choice of dynamics for individual lines or for the ensemble, or will use dynamics which take away the effect of large sections of the recording.

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Manipulation of mixing desk

12–10 *Excellent use of mixing desk which enables all aspects of the recording to be appreciated.*

Full, well-judged use of the mixing desk and its features, resulting in a recording which makes clearly audible all the features of the performance.

9–7 *Occasional miscalculations in the use of the mixing desk, to the extent that there are restrictions on its effectiveness in separating parts.*

On some occasions, use of the mixing desk is less than successful and leads to parts not being well separated effectively.

6–4 *Sections where the use of the mixing desk is misjudged, inappropriate or very limited.*

Into this band will be placed those recordings where there are *sections* wherein there is generally poor use of the mixing desk, with little being done to improve on the original mix.

3–1 *Generally little use of the mixing desk with few or no alterations from the original mix achieved.*

This lowest band of marks will reflect recordings where little or no use has been made of the mixing desk to manipulate the original recording.

Use of effects such as reverb, delay, etc

12–10 *Judicious and appropriate use of effects throughout the piece.*

In keeping with the style/genre of the music, effects such as reverb and delay will have been added with careful thought and clear judgement.

9–7 *Occasional miscalculations as to the use of effects.*

Into this band will be placed those recordings where, on occasions, the use of effects is misjudged, whether that be by over or under use.

6–4 *Sections where the effects are misjudged or lacking.*

This mark band is for those recordings where entire sections of the recording exhibit over use or a lack of any use where this would have been in keeping with the style/genre.

3–1 *Little or inappropriate use of effects.*

Recordings will be placed here either because there is no real evidence of the use of any effects between the original and final mix or their use is not in keeping with the style/genre of music.

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Quality of the recording across a wide range of frequencies

12–10 *An excellent recording with clear use of a wide range of frequencies.*

Recordings placed in this band will have used a wide range of frequencies and appropriate steps will have been taken through the use of equalisation, etc, to ensure that the recording has remained clear across the entire range.

9–7 *Occasional miscalculations as to the use of a wide frequency range.*

Within the final mix, there will be some occasions when the manipulation of the wide frequency range has not been handled completely effectively.

6–4 *Sections where the level of care and attention to matters of equalisation are misjudged or lacking.*

Into this band will be placed those recordings where *sections* of the final mix show insufficient attention to the application of equalisation, resulting in a final recording which does not exploit the wide frequency range successfully within these sections.

3–1 *Little or inappropriate use of equalisation for significant sections of the recording.*

For most of the final mix, there will be little evidence of the use of equalisation to ensure that the wide range of frequencies used remain clear and/or it will be clear that the use of equalisation has not achieved this aim.

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APPENDIX A

EXEMPLAR PERFORMANCES

Solo Acoustic Performances

Solo Cello

***Menuet I* & *Menuet II* by Bach for solo cello (Track 1)**

These are set at Grade 6 ABRSM and, as such, if the rest of the programme were of a similar standard, would attract a level of demand mark of 4.

This is quite assured playing, with some real feel for the style and character of the music. There are slight intonation errors but, overall, it is a convincing performance. The candidate's use of dynamics is perhaps a little limited and, given the period of this music, more might have been done to contrast dynamics, possibly at the repeat of sections in *Menuet I*; there is also scope for contrast within sections, between phrases. It is a confident performance and the player demonstrates an assured technical control.

In *Menuet II*, the use of *rubato* in bar 8 is interesting but, if the candidate wants to make some sort of feature of this in the performance of this second Minuet, then it should perhaps have been used a little more to afford some consistency in interpretation.

Solo Piano

***Octobre: Chant d'automne* by Tchaikovsky for solo piano (Track 2)**

Set as Grade 7 ABRSM and, therefore, attracting a level of demand mark of 5 if the rest of the programme matched this standard.

A generally secure performance with good phrasing and, for the most part, dynamic shading: this is playing of a generally high standard. However, there is room for improvement in several areas: overall, the dynamics are a little on the loud side; not all notes 'speak' clearly and evenly; some of the spread chords do not seem totally confidently played; there are obvious errors in bar 20 and, in the D.C., in bar 11, plus a hesitation bar 18.

There are places where the left hand does not always bring out the short phrases which answer those just heard in the right hand; bar 33 is not well timed; the Coda as a whole is too loud and the playing does not observe the marking *morendo* until virtually the last bar: indeed, there is a slight *crescendo* in the penultimate bar. It is in this section also that dynamic shading and/or tone gradation seem least controlled.

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Technology-based Performances

The following examples are included as a guide, but do not satisfy all the requirements of the specification.

1: Sequencing and multi-track recording

***Stand by me* (Track 3)**

This particular example uses 5 VSTi sounds, a voice and an acoustic guitar and the table gives the track listing and information on the process.

Track/instruments	Sound source	Patch/ microphone	MIDI Controllers/ audio processing
Bass	Hypersonic 2 VSTi	GM acoustic bass	7 – (main volume)
Strings	Hypersonic 2 VSTi	Soft legato strings	7 – (main volume) 11 – expression
Cellos	Hypersonic 2 VSTi	Atmos strings velo swell	11 – expression 91 – reverb
Oohs	Hypersonic 2 VSTi	Female ooh choir	7 – (main volume) 11 – expression
Percussion	Hypersonic 2 VSTi	GM drums	11 – expression
Vocal lead	Audio - Yamaha AX-44	Shure SM58	Multiband Compression vocal lead preset, VST Reverb A 15%
Acoustic guitar	Audio – RME multiface	Pair Behringer C-2 condensers	EQ cut: -5.0 at 800hz VST Reverb A 20% VST compression

Note: Output of Hypersonic given 15% mix of VST reverb A, matching audio reverb algorithm of audio tracks.

The candidate would additionally need to supply:

- details of the mixing process – a step-by-step account of the process by which the performance was achieved
- details of the mixing desk used
- an *explanation* of effects added rather than just a list

Candidates should refer to *'A Guide to Writing an Explanation to Accompany MUSC6: Music Technology Coursework'* at this point.

In this exemplar performance, the bass part as a whole is rather intrusive in the mix. There is a largely appropriate choice of timbres and, the bass track apart, the balance is generally good. There is no information as to the order of recording or any indication of the use of panning. Pitch and rhythm seem generally secure but otherwise this performance would probably be placed in the second (ie 9–7) band of marks.

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2: Multi-track/close microphone recording

(i): *Sweet Georgia Brown* (Track 4)

This example is of the final mix and, for the examination, the initial recording should also be submitted so that the examiner can assess the work done by the candidate to achieve that final mix. It is the *process* of moving from that initial recording to the final mix that is to be assessed.

This performance is for voice and five independent instrumental lines.

The information is again summarised in tabular form though this is not presented as the **only** way of meeting the examination requirements and, again, candidates should refer to '*A Guide to writing an explanation to accompany MUSC6: Music Technology coursework*' for further guidance as to the manner of submission.

Track No.	Instrument	Format	Microphones/DI	FX
1	Vocals	mono	Shure SM58	Multiband compressor set to vocals Noise gate, Reverb B 20% mix set to vocal plate
2	Yamaha steel strung guitar	stereo	Pair of Behringer C-2	Chorus, Reverb B 32% set to ambience, VST dynamics: compressor
3	Soprano Accordian	stereo	Pair of Behringer C-2	Reverb B 20% set to ambience, VST dynamics: compressor
4	Yamaha grand touche Piano	stereo	Pair of Behringer C-2	Reverb B 20% set to ambience
5	Squire Jazz Bass	mono	studiospares active DI box	Multiband compressor set to electric bass
6	Drum Kit	stereo	Samson Drum kit mikes; Sub mix Yamaha mixer	Reverb B 20% set to snare room

When the vocalist is involved, it is the vocal line which is prominent as well as the bass, somewhat to the overall detriment of the other tracks. During the instrumental section, there is a generally better balance but this is partially lost again when the vocalist rejoins the ensemble.

Without the initial recording valid comment in terms of the scheme of assessment is not possible. On the basis of this short piece (which could form only a part of the total performance), there is insufficient attention to detail to access the highest mark bands.

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(ii): *Deeper than me* (Track 5)

This is an example of a multi-track recording where all parts except the drum track are performed by the candidate via a multi-track recorder.

The information submitted is restricted to the following:

- Tascam 2488 multi-track recorder recording individual tracks
- Creative Player software to transfer the mix from the Tascam to a laptop
- Used *Nero 5 Burning* to burn the song to CD

Again there is no copy of the initial recording, just the final mix. The candidate should give some information as to the process of recording and balancing which was needed to produce the desired result, and detailed information about the lyrics, chords and structure. The candidate would also need to supply more precise details as to how the recording was made and what measures were subsequently taken to adjust/enhance the initial mix to produce the final version.

If this were to be regarded as the 'final mix', it is worth noting the following points:

- the overall sense of balance is good
- dynamic range is perhaps a little limited
- the different tracks/parts are generally well-differentiated
- there is some evidence of the use of reverb. but details are needed about this and any other effects such as delay, chorus, etc
- the overall quality of the recording is good across the frequencies used but details are needed as to precisely what these are.

Some of the missing details might be referred to within the candidate's written account which would accompany this performance.

In the first two exemplar cases for technology-based performances, other pieces would be required to meet the time span recommended within this unit (10–15 minutes) with pieces included to show variety. The final piece lasts almost 5 minutes and could, therefore, just about meet the requirement for one performance with the candidate then either submitting at least 5 minutes of music within Technology-based performance 1 or submitting more music within Technology-based performance 2 to provide variety, as required by the specification.

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Appendix B

INITIAL EQUIPMENT RESOURCES FOR TECHNOLOGY-BASED PERFORMANCES

The equipment necessary will be both the major hardware needed for sequencing and recording plus a selection of smaller items such as microphones, keyboards etc. There is no one solution fits all and technology is constantly evolving/improving so it is advisable to consult with a reputable music supplier.

As much a consideration is also the location of equipment and recording areas. Preferably recording areas need to be sound-proofed from sound coming in or out – but this is not always possible in schools and there may need to be a compromise.

Consider the following:

Sequencing

- Computers should be powerful enough to run what are demanding processes. It is recommended that other department 'cast offs' are not acceptable. Not all computers are built for music applications – some processors and makes do not work as well as others. If in doubt, use Pentium based processors or Apple Mac systems.
- Computer systems should be at the ratio of one per pupil.
- Main programs should include one sequencing program and one notation program.
- Will these be networked or standalone? Site licences will be required. Standalone systems will allow more independence. If networking is a school policy discuss the issues with your administrator. School administrators may have little knowledge of music software and its implications, especially hard disk recording. Discuss the networking situation before ordering.
- Keyboard and synthesisers are different; the keyboard type (with inbuilt speakers) can have compatibility problems with the MIDI implementation whereas synthesisers are more adaptable. Either way, make sure you have the handbook close by.
- All keyboards, synthesisers and sound modules should have the GM (General Midi) sound set. Derivations of this are GS (Roland) and XG (Yamaha).
- Backup issues are important and should be integral.

Recording

- Consideration should be given as to whether computer based DAW's (Digital Audio Workstations) or standalone multi-track systems should be used
- Computer based systems are easier to edit from, as you can copy and paste in the same way you would with MIDI data, but extra hardware is required; mixing desk, audio interface (24-bit) and the corresponding cabling.
- Standalone systems are self contained in that the mixing desk and audio interface is included, but editing is more complicated and may involve 'flying out' the audio files to a computer for editing and transferring them back into the recording unit once done.
- If the system is computer based, make sure that the program and audio interface is capable of recording and playing back the desired number of tracks. Powerful processors with increased memory and fast access hard disks are essential.
- Sound processing can be done using the computer plug-ins or the onboard multi-track effects. If an external mixing desk is used, extra hardware effects and processors can be added at extra cost and cabling.
- Look at how many microphones you can plug in at one time – aim for 4 microphones with phantom power. This will cover the drums which are the most 'microphone heavy' tracks to record.

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Other recording considerations are:

- choice of microphones – 2 good quality capacitor mics plus 2 other dynamic (as a minimum)
- cables and microphone stands (plus pop shields)
- recording areas (sound isolation and acoustics)
- backup issues (audio files are very big)
- hard disk management to keep the equipment working at optimum efficiency.

For both disciplines the following would apply:

- health and safety is paramount. There will be many cables including mains cables that could be trailing around the classroom or recording area
- you will need a system of transferring the coursework sequences and recordings to mini-disc or CD for submission. Whilst audio tracks can be burned directly onto CD (on a computer or DAW), sequences cannot be recorded directly to CD as they will have to be played back as they are recorded
- you will need consumables, eg blank mini-discs, CD-R etc
- monitoring (listening to your work) can be done through headphones or speakers, whichever is most convenient but speakers give a much more accurate reproduction, especially for recording projects.

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Appendix C

A GUIDE TO USING SOUND SOURCES FOR SEQUENCING

MIDI Sound Module/Keyboard	This is a hardware unit that contains a range of electronic synthesised or sample-based sounds. It is likely that this instrument will contain a General Midi (GM) sound set in addition to a wide range of other sounds. Common makes include – Yamaha, Roland, Korg
Computer Sound Card	This is a hardware soundcard fitted to a computer that is likely to function as a MIDI sound module and as an audio card, allowing digital recording. The range of sounds within these units is largely based around a GM sound set. The most common manufacturer would be Creative Labs.
Virtual Sound Module	This is a piece of software that is loaded onto a computer and provides a range of MIDI sounds through host sequencing software. The sounds are likely to include a GM sound set. The sounds respond to Midi Controllers in order to alter dynamics etc. These can be thought of as a software version of a hardware sound module. Common makes include – Edirol Virtual Sound Module and Steinberg Hypersonic.
Virtual Studio Instruments - VSTi	These are specific pieces of software that comply to the VST standard. They tend to be electronic sound sources that create specific sets of sounds – either by instrument, or as a software emulation of a famous synthesizer. They do not usually contain a GM set of sounds and do not necessarily respond to all MIDI controllers in a conventional way. Some are based on synthesized technology whilst others rely on sampling. Most of the popular sequencing software includes some virtual instruments. Popular VSTi include – Steinberg The Grand (piano), Steinberg Neon (synth), Arturia Prophet (old synth), Arturia Bass (range of bass instruments), Logic Instruments.
Sample Library Virtual Instruments	These are libraries of samples of instruments or sounds that can be replayed using MIDI trigger notes. Some sample libraries have their own playback engine, whilst others make use of sample players such as Steinberg Halio or ESX, Kontakt player. Sample libraries are increasingly common in relation to orchestral instruments, with different notes and performance styles captured for each instrument. Drum samples are also common. Many of the samples contain inherent performance characteristics such as swell or staccato. They do not generally make use of MIDI controllers to create musical shaping. Common makes include – Vienna Symphonic Library, East West, Steinberg Halion Symphonic Orchestra, ESX-24, Kontakt.

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Loop Based Sample Instruments	This new range of software instruments contain a large amount of musical content organised into riffs, patterns and styles. The user makes use of pre-determined musical material using a pattern based interface. It is not possible to create totally original musical compositions using these instruments. They do not generally respond to MIDI controller data since the 'content' has its own inherent performance characteristics. Common makes include – Steinberg: Virtual Guitarist, Virtual Bassist, Groove agent (Drum machine).
Content Based Software	The most popular version of this software is Reason. It provides the user with the ability to manipulate and create a wide range of timbres using both synth and sample techniques. It can integrate with more common sequencing software using 'Rewire' technology. Some of the 'instrument modules' can respond to MIDI controllers.

It is advisable that for the Music Technology assessment tasks set by AQA for MUSC3 and 6 candidates stick to the use of MIDI sound module/keyboard, Computer Sound Card and Virtual Sound Module. The use of Virtual Studio Instruments (VSTi) is recommended providing that the VSTi is controlled by the candidate using MIDI controllers and editing techniques. Thus VSTi's that have inherent performance characteristics within their timbres that are not directly controlled by the candidate using MIDI controllers, should **not** be used.

Sequencing Skills Needed and Considerations

- Data input methods
- Note Accuracy
- Articulation
- Expression (dynamic) and Phrasing
- Tempo handling
- Convincing drums
- Individual note editing
- Drum and guitar parts
- Listen and imitate

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Appendix D

A GUIDE TO MULTI-TRACK RECORDING

Direct Injection

A DI box allows you to connect an instrument directly to your mixing desk or recorder without having to use a microphone. This can speed up the recording process, allowing more than one track to be laid down at a time without having to worry about spill, and avoids the difficulties associated with selecting and placing microphones. Electronic instruments such as keyboards can be connected directly to the line input of your mixing desk.

Foldback

You will need to provide adequate foldback for the performers so that they can hear a mix of both themselves and what you have recorded, and that so they can play along. This will usually be provided by a suitable output from your mixer and should be presented over headphones, preferably with a closed back to avoid spill into the recording microphones.

Recording levels

Ensuring good use of recording levels at all stages of the process is critical. You may need a compressor with some instruments to get a more consistent overall recording level.

Microphones

Two main types of microphone: Dynamic and Condenser.

Dynamic microphones are quite robust compared to condenser microphones. They are commonly used for live pop music, as they can withstand nightly use on tour in public venues, without concern for the reliability of their operation. Condenser microphones are more generally used for studio work or for classical recordings, although dynamic microphones are also desirable in some studio applications. The qualities and features of the two types can be summarised as follows:

Condenser microphones

- Wide, extended and generally more linear frequency response.
- Detailed, clear sound with good high frequency pickup.
- Sensitive with good transient response.
- Require battery or external phantom powering.
- Need to be treated with care.
- High output level means less gain required at mixer input and so they often generate less noise (hiss).

Dynamic microphones

- Rougher frequency response (but this can be desirable in some contexts).
- Good for high volume levels.
- Poor transient response.
- Robust and reliable, withstanding heat, cold and humidity.
- Generally low output level requires high gain level at mixer input.
- Low level of performer handling noise.

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Recording Considerations

- Organisation: Track allocation
  Music preparation
  Recording and setting up time
  Mix down time
- Compression (eg vocals, drums, bass)
- FX and processing on mix down
- Monitor through speakers
- Noise and distortion avoided
- Poor recording can not be undone

Effects

Effects can be used to correct or enhance recordings and are generally used at the mix down stage. Three of the most important are equalisation, compression and reverb.

Equalisation (EQ)

Equalisation, or EQ, allows you to adjust the relative balance of the frequencies present in your audio recording. EQ channels are found on each channel of even the most basic mixing desks. You should expect three sections; low, high and mid. Low and high (more commonly known as bass and treble) are designed to allow you to cut or boost all the frequencies above or below a specific point. Typically a low EQ will be set to cut or boost frequencies below 100Hz, and a high EQ will do a similar task above 10kHz. The mid range between these two extremes is controlled using bands of mid EQ.

Compression

Compression is a very subtle and often misunderstood effect that is fundamental to the production of popular music. Unlike classical music, most pop music has a very limited dynamic range – there is little difference between loud and quiet passages.

Essentially a compressor is an automatic volume control, turning down the signal level when it gets too loud. As a result of the loudest parts of your recording being compressed, you can afford to turn up the overall signal level knowing it won't distort or clip. Therefore, a compressor can be said to make the loudest parts of your recording quieter and the quiet parts louder, hence reducing the overall dynamic range.

Reverb

The process of close-miking means that there is usually little of the recording room's acoustic characteristics in the finished result and so artificial reverb has to be added at the mixing down stage. Reverb can sound dramatic and exciting, and it can help notes and passages blend together into a uniform event. However, too much can make the music lack clarity and sound cluttered. Reverb can also be used to impart a sense of distance.

Mixing Down

Mixing down is the task of bringing together your recorded tracks into one finished, coherent musical work.

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Mixing Tips

- Zero the mixing desk before starting. EQ should be flat, aux sends turned down and channels should be routed to stereo/mix. Bring the faders down on any channels not in use.
- Set levels as high as possible for the multi-track returns, effects sends and returns, external effects units and your two track mastering machine.
- Group logical sections of your mix, such as the drum kit, so that you can control the overall level of the grouped elements from a single fader or pair of faders.
- Go through each track/channel one at a time and apply corrective effects such as compression or EQ. Remember to listen to the track in isolation and as part of the whole mix as you do this.
- Don't overdo the effects, especially reverb, as this can clutter your recording and take away the contrast that is needed to give your mix punch.
- Create a good sense of stereo width by panning your tracks. Careful use of panning will allow your tracks to sit together better in the mix, rather than fighting for the same sonic area and ending up sounding confused. Don't pan bass sounds such as kick drums or bass guitars.
- Try panning your sounds from left to right as you might imagine them on a stage playing live.
- Try not to have too many instruments competing for the same part of the frequency spectrum. You can improve separation when mixing by using EQ.
- Don't over-equalise tracks as they're likely to sound unnatural, especially when boosted.
- Compress the vocals to make them sit nicely in the mix.
- Don't monitor too loudly.
- Check your mixes on headphones as well as speakers. Headphones show up some details that you might not hear over loud speakers. Don't rely solely on headphones for mixing, as they represent the stereo image differently from loudspeakers and have a poor low-frequency response.
- In a busy mix, try 'ducking' mid-range instruments such as guitars and synthesisers so that whenever vocals are present the conflicting sounds fall in level slightly. This will work better than just turning up the vocals to make them louder.

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