

Mark Scheme (Results)

Summer 2007

GCE

GCE Music Technology (6718) 01

Candidates should note that in order to align the notated score with the MIDI file, bars 1–5 are silent. The music begins at bar 4.

Section A: Analysis and Discrimination

1. Look at **bars 4-15** on the printed score.

(a) What key is this piece in? Select **one** answer

F major

G Minor

D minor

B^b major

(1)

(b) Looking at the metronome marking and time signature, which of the following best describes the rhythmic feel of this piece? Select **one** answer.

3 crotchet beats
per bar

4 dotted quaver beats
per bar

12 semiquaver beats
per bar

**2 dotted crotchet
beats
per bar**

(1)

(c) Explain what is meant by the marking GRAPHIC at the beginning of the score

Tempo/Metronome mark (1)

50 dotted crotchet beats per minute (bpm) (1) (Allow drawing of dotted crotchet)

(2)

(d) Describe the cello part played during this section of the score

Starts off playing a single sustained note/drone/pedal note (1)

Fades in/crescendos (1)

Then plays the root note of each chord (1)

plays ascending sequence (1)

(e) Using the table below, identify **three** notes of the basic triad for each following chords, and identify **one** extension note.

Chord	Basic Triad	Chord Extension Note
Gm^{7 +4}	G Bb D	C or F
B^b maj⁹	Bb D F	C or A
C⁺⁴	C E G	F
	(1 mark x 3)	(1 mark x 3)

(6)

(Total 12 marks) Q1

2. Look at the **Instrumental** and **Middle Section** on the score (bars 61-76).

(a) Complete the table below, giving the meaning of each of the following performance directions.

Bar	Part	Performance direction	Meaning
61	Violins	divisi pizz.	Divisi means that the line divides into 2 separate parts (1) Pizzicato/instructs the player to pluck the strings (1) Not strummed (2)
63	Violins	arco – vln 1	Arco instructs the player to bow the notes (1) Played violin 1/violin 2 rests (1) (2)
69	Drum Kit	(half closed)	<u>Use pedal</u> to half-close (1) the <u>hi hats</u> (1) (2)

(b) Look at the **Drum Kit** line in **bars 68-69**. Using the percussion stave below, notate the rhythm played by the bass drum during these bars. You should include rests where appropriate.

The image shows a musical score for a drum kit in 6/8 time, consisting of six staves. The notation includes various drum symbols and rests. The bass drum part is the focus for notation.

Staff 1 (Cymbal): $\text{C} \cdot \text{C} \cdot \text{C} \cdot \text{C} \cdot \text{C} \cdot \text{C} \cdot$

Staff 2 (Snare): $\text{S} \cdot \text{S} \cdot \text{S} \cdot \text{S} \cdot \text{S} \cdot \text{S} \cdot$

Staff 3 (Tom): $\text{T} \cdot \text{T} \cdot \text{T} \cdot \text{T} \cdot \text{T} \cdot \text{T} \cdot$

Staff 4 (Bass Drum): $\text{B} \cdot \text{B} \cdot \text{B} \cdot \text{B} \cdot \text{B} \cdot \text{B} \cdot$

Staff 5 (Hi-Hat): $\text{H} \cdot \text{H} \cdot \text{H} \cdot \text{H} \cdot \text{H} \cdot \text{H} \cdot$

Staff 6 (Kick): $\text{K} \cdot \text{K} \cdot \text{K} \cdot \text{K} \cdot \text{K} \cdot \text{K} \cdot$

Half mark per correct half bar, total rounded up.

(2)

(Total 8 marks) Q2

3. Listen to the audio CD.

(a) This style of this music could be described as 'Acoustic' or 'Unplugged'. Identify **three** features of this music that suggest an acoustic or unplugged style. You may include musical as well as production features.

Acoustic instrumentation/acoustic guitar.

Light drumming style

Less mics on drum kit – toms are captured using overheads

Addition of less conventional acoustic instruments – cello, vibraphone, strings

Unfussy production – less reverb; lack of unusual effects; lack of overdubs/harmony vocals

Cello replaces bass guitar to provide bass line

Electric guitar plays a very 'back seat' role

Not "fret noise"

(3)

(b) Which of the following artists/bands is most famous for having produced an Unplugged album? Select **one** answer.

Pet Shop Boys

Eric Clapton

Queen

Iron Maiden

(1)

(c) Briefly describe the development of the Unplugged genre.

Developed by MTV (1) in the 1990's (1). Typically features louder/heavy distorted guitar/synth/dance/heavily produced bands performing a more intimate, acoustic set (1).

Award appropriate artist e.g. Nirvana, (1). **Not "Eric Clapton" or artists that were acoustic already eg. Jack Johnson.**

Not folk / country / blues / 1960's

(2)

(Total 6 marks) Q3

4.(a) For each of the following effects/production techniques, identify a track/part that features the effect/production technique.

Reverb	Award any track apart from acoustic guitar. Not “guitar”
Double tracking	Backing vocals/female vocals (not ‘vocals’)
Bounce-back delay	Violins, electric guitar. Not “strings” or “guitar”
Tremolo	Electric guitar
ADT	Lead Vocals/male vocals (not ‘vocals’)

(5)

(b) Complete the table below to describe how the engineer would have created the warm and intimate **lead vocal** sound. The first row of the table has been provided as an example.

Aspect of Production	Description of configuration or settings
Microphone choice	Cardioid capacitor microphone selected to pick up full range of frequencies/less room ambience.
Microphone placement	Close range to minimise room ambience (or specify appropriate distance) (1) Close range to maximise proximity effect/emphasise LF (1) Close range to <u>pick up breath</u> (1) Not “close” – needs justification.
Compression	Fairly heavy compression used to emphasise ‘breathy’ sound quality (1) May have used valve compression to produce warmth (1)
Reverb	Short decay time/small pre-delay used (1) Not much reverb/fairly dry (1) Room/short plate setting (or any other appropriate preset) used (1). <u>Not Hall</u> HF damping/HF reduced to reduce brightness of reverb (1)
Equalisation	No obvious boosting of high frequencies (1) <u>Little EQ for natural sound</u> (1) (must have both unlined points for mark) Not LP filter Not HF cut

(4)

(Total 9 marks) Q4

END OF SECTION A (TOTAL 35 MARKS)

5. (a) Using the table below, identify the program change number used to select the sound for each track **in bars 2-3**.

Track/part	MIDI channel	Program change number	
Lead Vocal	1	46	47
Backing Vocal	2	60	61
Cello	4	42	43
Vibraphone	5	12	13
Electric Guitar	7	27	28

Use either column of values to mark.

Where candidate has used both numbering systems, mark to both columns and carry the highest mark forward

(5)

(b) Explain the function of the **BV Double** track (MIDI channel 11)

Used to produce a double track effect (1) for the backing vocal track (1).

Plays the same as the backing vocal track (1). BV Opposite panned (1)

Not “ADT”

(2)

(c) Identify **three** different bars in the **Violins** track that include program changes

2, 59, 63, 65, 67

(3)

(Total 10 marks) Q5

6. (a) Analyse the **Cello** track between **bars 53-76**. Using the table below, identify errors in **pitch** in the MIDI file compared with the score. The first line has been completed as an example.

	Bar number IN SCORE	Correct Pitch IN SCORE	Incorrect Pitch IN MIDI FILE
Example	55	Bb	C
1	60	C	E
2	62	G	F
3	62	A	G
4	64	Bb	G
5	65	C	F
6	70	Ab	Bb/A#
7	74	Eb	F#
	1 mark x4	1 mark x 4	1 mark x 4

(12)

(b) (i) Which of the following quantise settings would be most appropriately applied to this section of the cello track? Select **one** answer.

8T

16T

8

16

(1)

(ii) Explain why this quantise value would be the most appropriate

Smallest rhythmic value is a semiquaver /16th note (1)

Not "16T"

(1)

(Total 14 marks) Q6

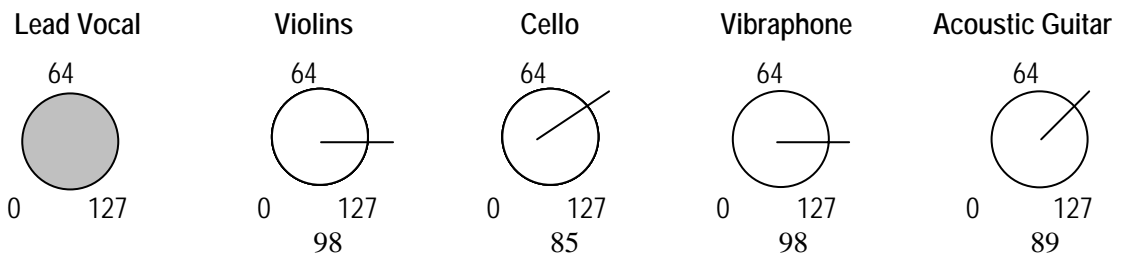
7. MIDI controller events have been used at the start of this track to control various parameters on the playback device being used. This data is transmitted in **bars 2-3**.

(a) Identify the initial values of controllers 7, 11 and 93 for each of the following tracks.

Track	MIDI Channel	Controller 7	Controller 11	Controller 93
Lead Vocal	1	100	100	0
Backing Vocal	2	64	92	12
Violins	3	92	100	0
Cello	4	89	100	5

(12)

(b) Using the diagram below, mark the **reverb depth** settings for each of the following tracks. An example is given.



One mark for each:

Violins and Vibraphone must be identical and between 2 and 4 o'clock;

Cello and Acoustic Guitar must be between 1 and 3 o'clock.

(4)

(Total 16 marks) Q7

8. The diagram below shows MIDI data contained within a 'header section' of a sequenced track.

Event Type	Start	End	Length	Data 1	Data 2	Chn
Program Change	05.01.01.060	-	-	13	0	3
Controller	05.01.02.000	-	-	7	102	3
Controller	05.01.02.060	-	-	10	46	3
Controller	05.01.03.000	-	-	93	110	3
Controller	05.02.03.000	-	-	1	0	3

(a) Explain the function of the following MIDI events which are used in the header section of a standard MIDI file.

- (i) Program Change Sets the timbre/patch/program/instrument. **Not “sound” or “voice”.**
(1)
-
- (ii) Main Volume Channel volume/ sets overall balance between MIDI channels / to create a mix.
Not “track volume” or “volume of instrument”.
(1)
-
- (iii) Effects Depth 3 Sets the chorus depth/amount of chorus. **Not “reverb” or “reverb/chorus”** (1)
-
- (iv) Modulation Resets modulation / modulation set to 0. **Not “sets modulation”.**
(1)
-

(b) Using the table below, identify **two** other MIDI controllers that could be added to the header section above to ensure the track plays back correctly.

	Controller Name	Controller Number	Controller Type
	Expression	11	Continuous
	<u>Reverb</u> depth / Effect 1 depth / Ext	91	Continuous
	Eff 1	92	Continuous
	Delay level / effect 2 depth / ext eff 2	121	Switch
	Reset controllers/reset ctrl		
	(1 mark x2)	(1 mark x2)	(1 mark x2)

(6)

Not sustain, 64, because there is no sustain pedal on a marimba (program change). **Not GM reset.**

Note: Controller Name and Controller Number must match in the same row to award Controller Number.

Controller Name and Controller Type must match in the same row to award Controller Type.

Therefore Controller Type can be wrong to award Controller Name and Controller Number.

(Total 10 marks) Q8

9. The General MIDI (GM) Specification was introduced to ensure improved compatibility between MIDI devices such as keyboards, synthesisers and sound modules.

(a) Explain how the timbres/programs are arranged within a General MIDI sound set.

Group of 128 sounds / timbres / programs / patches / numbered 0 – 127 or 1 – 128 (1)

Arranged in instrument groups / categories / families (1) There are 16 instrument groups, with 8 sounds in each (1)

Instrument / timbre program numbers are universally the same (1).

Award 1 mark for relevant example of instrument group or instrument – max 1 for both.

(2)

(b) General MIDI compatible devices must feature the General MIDI standard sound set. List **three other** technical requirements the MIDI device must meet in order to be General MIDI compatible.

Should be 16 part multi-timbral/able to play back on 16 channel simultaneously (1)

Device should be able to play at least 24 notes simultaneously/should be minimum of 24 note polyphony (1)

Channel 10 should be reserved for drums (1)

Must be able to respond to controllers 1 (modulation), 7 (main volume), 10 (pan), 11 (expression), 64 (sustain pedal), 121 (reset controllers) and 123 (all notes off) AT LEAST ONE EXAMPLE MUST BE GIVEN. (1)

Pitch bend range should default to (+/-) 2 semitones (1)

Drums kit layout across keyboard should match standard GM drum map (1)

Respond to (SysEx) GM reset command. (1)

Not “SysEx”, any reference to “Program Change” or question 9(a).

(3)

(Total 5 marks) Q9

10. MIDI file programmers use a combination of sequencing techniques in attempt to achieve a musical performance.

Using the table below, explain how the programmer has used sequencing techniques to recreate musical features. An example has been provided for you.

	Bar reference IN SCORE	Track	Musical Feature	Sequencing techniques used to recreate the musical feature
	4-5	Acoustic Guitar	Strummed chords	<ul style="list-style-type: none"> • Notes staggered slightly • Variation in velocity to accent main beats of bar
1	16	Drum Kit	Short snare 'ghost' notes	Use of <u>32 quantise</u> to place notes in time (1) Low velocity compared to main snare hits (1) Not demi-semi quavers.
2	16-23	Cello	Expressive legato lines	<u>CC 11</u> or <u>Expression</u> (1) used to crescendo through notes (1) Overlapping notes for legato (1) <u>CC 1</u> or <u>Modulation</u> (1) gradually <u>decreases</u> on some long notes (1) Varying note velocity (1) Not quantized /off the beat/rubato (1) <u>Pitchbend</u> (1) to slide between notes.
3	20-27	Vibraphone	Octave tremolando	Lack of quantise makes this sound more 'human' (1) Note spacing is varied to make the tremolando change in intensity (1) <u>Sustain</u> controller (CC64) used (1) Varying velocity / velocity shaping (1) Not "overlapping notes" because of CC64.
4	20-27	Electric Guitar	Tremolo effect	Variation in expression / CC11 (1) Rapidly rising and falling (1) (credit pictorial representation) Timed to quavers/8ths (1) Six times per bar (1)
5	32-35	Electric Guitar	Delay effect	Second track used/Track copy and pasted to a new channel (1) Delay track plays <u>quaver later/behind</u> main guitar track (1) Delay track has higher main volume value than main guitar track (1) Delay track has lower velocities than main guitar track (1) NOT "lower volume" or "panned R" .
				(2 marks x 5)

Note: Don't credit any sentence that contradicts correct use of controller.

Eg:

Q2 "Velocity gradually increases through note" because that's not possible

Q4 "Main volume reduced and increased rapidly" because Volume changes are not what happens in the MIDI file.

Don't credit methods of data input, eg:

"Clicked in with mouse"

"Drawn ramp on hyper draw"

except where an underlined word is included in Q2, eg: "Modulation wheel"

(Total 10 marks) Q10