Edexcel GCE

Music Technology
Unit no. 6718/01

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Mark Scheme (Results)

Edexcel 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 6.

Section A: Analysis and Discrimination

Instructions for Section A

1. **Load the AUDIO CD into your CD drive or audio CD player and listen to track 1.**
2. **Listen to the music while following the printed score.**

You may listen to the music as many times as you wish.

1. Look at the first page of the score **(bars 6-15)**

   (a) What key is this piece of music in? Put a cross in the correct box.

A minor [ ] D major [ ] G major [ ] C major **[X]**

(1)

   (b) Complete the table below, giving the meaning of each of the following score markings.

Bar	**Part**	**Score Marking**	**Meaning**
6	All parts	Swing feel 	**Quavers played swung/uneven (1). Gives a triplet/compound feel to the music (12/8) (1). Shuffle feel (1). In a pair of quavers the first is made longer (1). Two quavers would be played as a triplet crotchet and quaver (2)** **(2)**
9	Drum Kit		**Open (1) Hi-hat (1) note. (Hi-hat) struck without the pedal pressed (1).** **(2)**
11	Electric Guitar	Palm mute	**Instructs player to mute strings (1) with the palm of their hand (1)/with the right hand (1).** **(2)**

(Total 7 marks) Q1

2. Look at **Verse 1 (bars 10-25)** and the **Chorus (bars 26-33)** on the score

(a) Identify the chords played by the **Electric Piano** in the following bars. You should use conventional chord notation e.g. Am7.

	Bar 10	**Bar 11**	**Bar 12**	**Bar 13**	**Bar 14**	**Bar 15**
Chord	**C** **C major** **C maj**	**G** **G major** **G maj**	**Am** **A minor** **A min**	**E7** **E then E7**	**F** **F major** **F maj**	**C/E** **C major/E** **C maj/E** **C over E (bass)**

(6)

(b) Describe the phrase structure of the **Electric Guitar** during Verse 1.

Alternates between <u>lower</u> palm muted phrase and <u>higher</u> un-muted phrase (1)
Lower muted motif lasts for 7 bars in each phrase (1), higher un-muted motif plays in 8th bar of each phrase (1).
Split into 2x 8 bar phrases (2)
8 bar phrase (1) plays twice/is repeated once (1)
Guitar plays in between vocal phrases/answers vocal phrases (1)

(2)

(c) Describe 3 differences in **instrumental texture** between Verse 1 and the Chorus.

Backing vocals enter in the chorus/are added/are present <u>in chorus</u>
Synth part enters/is added/plays <u>in chorus</u>
Guitar plays chords instead of picking out melodic motifs/guitar plays chords <u>in the chorus</u>
Piano plays higher in register/more movement in piano part
Bass plays sustained notes <u>in chorus</u>/a more sustained part
Drummer switches to ride cymbal opposed to hi-hat
Addition of cabasa in chorus/cabasa plays <u>in chorus</u>

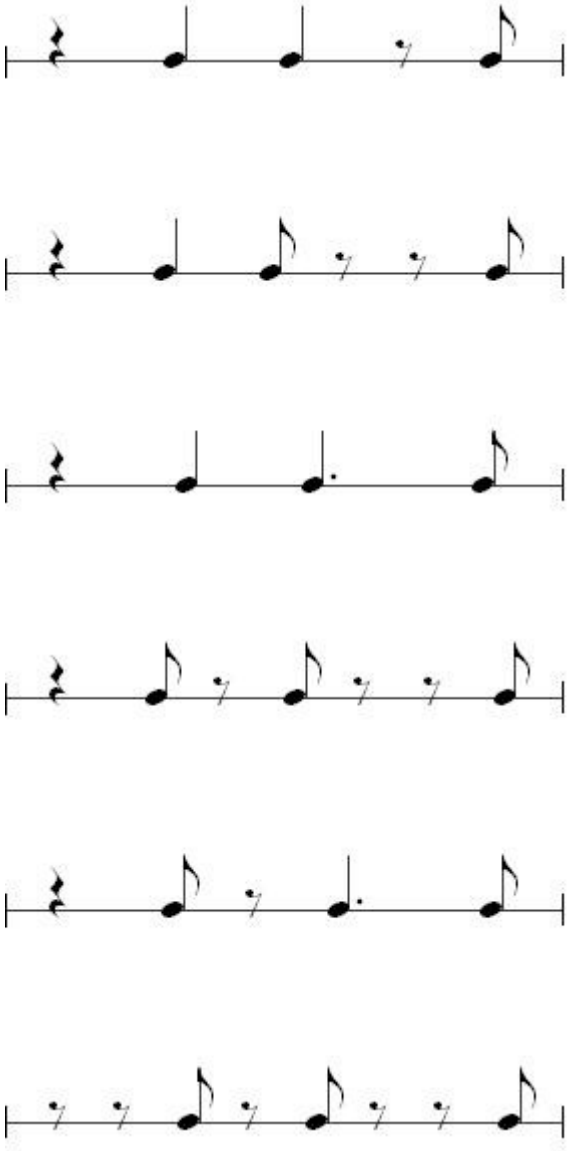
(3)

(Total 11 marks) Q2

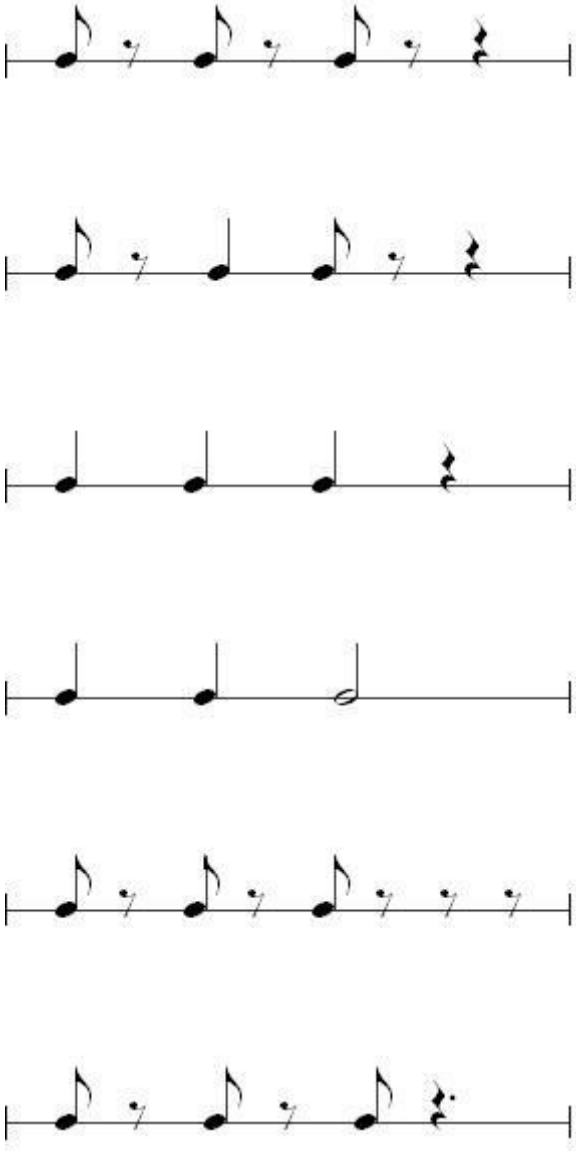
3. Look at the **Drum Kit** line in **bars 72 to 74**. Using the percussion stave below, notate the rhythm played by the **snare drum** during these bars. You should include rests where appropriate.

Bar 72 (first bar) – only acceptable response. Rest must hang <u>below</u> line

Bar 73 (second bar)
Examples of anticipated responses



Bar 74 (third bar)
Examples of anticipated responses



1 mark per correct bar (3)

(Total 3 marks) Q3

4. (a) Which of the following best describes the genre of this piece of music? Put a cross in the correct box.

Pop ballad **[X]** Motown [ ] Country [ ] Funk [ ]

(1)

(b) Identify **three** features of the piece that suggest the genre you have chosen. You may include musical as well as production features.

Subject matter – love
Key change into chorus/modulation part way through
Minimal/laid-back use of guitar
Pop song structure/ strophic (verse/chorus with contrasting middle section etc)
Conjunct/diatonic/catchy melody line
Repetitive bass line
Distinctive use of vocal effects
Bright EQ/reverb used on vocals
Vocal harmony in 3rds/6ths
Similar dynamic level throughout
Addition of synth/percussion timbres in chorus
Clinical/clean approach to production
Combination of guitars/drums/vocals and synth (keyboard)
Use of bright electric piano
High register string note (used in verse)

(3)

(Total 4 marks) Q4

5. (a) Using the table below, comment on the production of the **Drum Kit** on the audio recording. An example is provided.

Aspect of production	**Description**
Pan	• Fairly wide stereo image • Placement is 'as the audience hears it', with ride cymbal to left and hi-hat to right hand side.
Balance	**Bass/kick drum prominent (1)** **Prominent snare drum/toms (1)** **Hi-hats less prominent than is common in pop music (1)** **Cymbals less prominent (1)** **Bass drum masks the bass guitar because it is so prominent (1)** (2)
Equalisation	**Not very bright overall/lack of HF detail (1)** **Cymbals would benefit from HF boost (1)** **Bass/kick drum very rich in LF (1)** **Mid freq/MF boost on kick (for clarity)** (2)
Effects Processing	**Fairly dry (1)/reverb is hard to hear (1)** **Small room/plate reverb used (1)** **Reverb used on snare** (2)

(b) Identify **three** effects <u>apart from reverb</u> used on the **Voice** in the **Middle Section (bars 59-74)**

(i) **Panning across the stereo field/autopan/panning from left to right (or vice versa)**

(1)

(ii) **Delay/multitap delay/ echo**

(1)

(iii) **Restriction of frequency range/band pass filter/boost in mid range/removal of HF <u>and</u> LF**

(1)

(c) Which of the following processes has been used to give a 'vintage' sound to the **Trumpet and Saxophone** tracks? Put a cross in the correct box.

Adding Phaser Effect [ ] **Restriction of Frequency Range [X]** **Sample Looping** [ ] **Proximity Effect** [ ]

(1)

(Total 10 marks) Q5

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 6.

Section B: Controlling and Interpreting MIDI Data

Instructions for Section B

1. **Load/open your music sequencing software.**

2. **Import the file *normal.mid* from the MIDI File Data CD ROM into your music software. If you are using Cubasis 4 or Cubasis 5 you should import the *offset.mid* file. If you are using sonar software you should open the *normal.mid* file from the file menu.**

3. **Ensure that you have a General MIDI sound module/sound card/keyboard connected to your computer.**

4. **Plug your headphones into your sound module/sound card/keyboard.**

5. **Listen to the MIDI file version of the examination music whilst following the printed score.**

6. **Complete the following statements:**

   The first note of the music in the MIDI file version of the song can be heard during (tick your selection):

   Bar 4 ☐

   Bar 6 ☐

   Other (please specify) ☐

   I have used the following MIDI file from the CD ROM in this examination (tick your selection):

   normal.mid ☐

   offset.mid ☐

   The name of the sequencing software I am using is ……..

   You may listen to the music as many times as you wish.

   In Order to answer this section you will need to examine the MIDI file data using a range of editors within your music sequencing software.

   You are advised to take note of the number of marks allocated to each question when deciding how long to spend on each question.

6. (a) Both the **Synthesiser** and **Electric Guitar** tracks use program changes during the piece. Using the table below, identify **two** different program change values used for each track and explain why they have been used.

Track	**Program Change Value (i)**	**Program Change Value(ii)**	**Explanation**
Synth	**80 (79)** **49 (48)** (1)	**49 (48)** **80 (79)** (1)	**Switches between sine sound and string sound** **One sound used for verse, another for chorus** **Changes between ocarina and strings** **Changes sound to strings** (1)
ElecGuit	**28 (27)** **27 (26)** (1)	**27 (26)** **28 (27)** (1)	**Switches to softer guitar sound** **Changes sound in chorus for strummed chords** **One sound used for verse, another for chorus** **Changes between clean guitar and jazz guitar** (1)

(b) Identify **three** MIDI programming techniques which have been used in the **Chorus (bars 26-33)** to recreate the strummed **Electric Guitar** line.

Staggering of notes/notes offset with each other/offset within a chord (1)
Lack of quantise/not exactly in time (1)
Down strums have notes staggered low-high and vice versa (1)
Variation in velocity (1)
Lower velocity on up strums (2)
Very short note lengths to give muted effect/staccato/left hand muting (1)
Use of program change (1)

(3)

(Total 9 marks) Q6

7. (a) Analyse the **Electric Piano** track between **bars 34-81**. 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.

Answers may appear in any order.

Where bar number is correct and beat number is not, you **may** still award 1 mark for correct pitches on right hand side of table.

	Bar IN SCORE	**Beat**	**Correct Pitch IN SCORE**	**Incorrect Pitch IN MIDI FILE**
Example	38	1	C	D
	44	**1**	**E** **E3**	**E (octave too high)** **E4** **E (8ve higher)** **E (up an octave)**
	48	**1**	**D**	**C**
	51	**1**	**C**	**B**
	53	**4**	**A**	**Bb/A#** **B flat/A sharp**
	56	**1**	**D**	**C**
	61	**1**	**B**	**A**
	70	**3**	**E**	**D**
	74	**1**	**D**	**C#/Db** **C sharp/D flat**
	79	**4**	**Bb** **B flat**	**D**
	81	**1**	**D**	**C**
	1 mark x5		1 mark x5	

(10)

(b) Identify **two** different bars within this section on the Electric Piano track that contain inappropriate note lengths.

(i) Bar **41, 56** **(1)**

(ii) Bar **41, 56** **(1)**

(c) The Electric Piano has been sequenced to include both right and left hands lines in a single MIDI track. Identify **two** advantages and disadvantages of this approach compared to sequencing the right and left hands lines on separate tracks.

Advantage

More natural to play hands together if played in real time
Easier to copy/paste/duplicate/move sections of the piano part
All notes are visible whilst editing
Uses less MIDI channels
Can <u>easily</u> apply the same <u>controller</u> settings to both parts
Can apply quantise more easily
More realistic sense of stereo field/acoustic depth when a stereo sound is selected

(2)

Disadvantage

Harder to edit when parts are combined
Cannot solo individual parts
Difficult to control balance between the two parts
Not possible to use different controller/effects/quantise settings for each part
Sometimes difficult to play both hands at the same time
Not possible to pan hands/parts to different values

(2)

(Total 16 marks) Q7

8. MIDI controller events have been used at the start of this song to control various parameters on the playback device being used. This data is transmitted at the beginning of each track.

(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**
BV's	2	**114**	**100**	**6** **06** **006**
Trumpet	3	**82** **082**	**100**	**0** **00** **000**
Tenor Sax	4	**78** **078**	**120**	**25** **025**
Synth.	5	**86** **086**	**110**	**0** **00** **000**

(12)

(b) For each of the following controllers, explain how the range of values affect the sound. An example is provided.

Controller Name	Value Range	Explanation of Range
Modulation	0-127	A value of 0 would give no vibrato. 127 would produce maximum vibrato.
Pan	0-127	**Less than 64 = panned left, more than 64 = panned right** **0 = <u>hard</u> left, 127 = <u>hard</u> right**
Effect 1 Depth	0-127	**0 = min <u>reverb</u>, 127 = maximum <u>reverb</u>**
Main Volume	0-127	**0= min volume, 127 = max volume**

(3)

(Total 15 marks) Q8

9. 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	-	-	2	0	6
Controller	05.01.02.000	-	-	10	64	6
Controller	05.01.02.060	-	-	7	100	6
Controller	05.01.03.000	-	-	11	110	6
Controller	05.01.03.060	-	-	91	48	6
Controller	05.01.04.000	-	-	64	25	6
Controller	05.01.04.060	-	-	93	0	6
Controller	05.02.01.000	-	-	1	90	6

(a) Which family of instruments does the GM sound being used above belong to? Put a cross in the correct box.

Tuned Percussion [ ] Wind [ ] Ethnic [ ] Keyboard **[X]**

(1)

(b) Why are the start times of the MIDI events staggered?

MIDI is a serial protocol (1). This means that only one message can be transmitted at a time (1). If events are not staggered some of the data may not be transmitted correctly (1). This could result in data drop out/corruption/midi choke (1).

(2)

(c) Describe **two** mistakes the MIDI file programmer has made when producing the header data shown in the diagram above.

(i) Controller 64/sustain (pedal) (1) only responds to values of 0 and 127/will not respond to a value of 25 because it is a switch (1)

(2)

(ii) Controller 1/modulation (1). Usually is reset/ value of 0/ not used in header track (1). Not appropriate for use with piano sound selected (1)
Controller 121/reset control (1) is missing (1)

(2)

(d) Name **one** continuous controller and **one** switch controller being used in the diagram above.

Continuous Controller Name **Pan**
(Main) Volume
Expression
Effects 1/Effect Depth 1/Ext Effect 1/Reverb (Depth)
Effects 3/Effect Depth 3/Ext Effect 3/Chorus (Depth)
Modulation (depth)

(1)

Switch Controller Name **Sustain/(pedal)**

(1)

(Total 9 marks) Q8

10. MIDI is a universal language that allows MIDI devices such as keyboards, synthesisers and sequencers to communicate with each other. Give a brief definition for the each of following technical terms which relate to MIDI devices.

(a) Multi-timbral (2)

Ability to play back multiple timbres/instruments simultaneously (1)
Each timbre is assigned to a separate MIDI channel (1)
Ability to play back data on multiple MIDI channels (1)
The GM specification has 16 channels (1)

(b) MIDI Thru (2)

A socket on a MIDI device (1) which echoes/passes on any MIDI data that is being received at the MIDI in socket (1). Used to chain MIDI devices together (1). Also used on sequencers where the MIDI output on the interface acts as a MIDI thru (1).

(Total 4 marks) Q10

11. 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 Number(s)	**Track**	**Musical Feature**	**Sequencing techniques used to recreate the musical feature**
	10-17	Bass	'Groove' created against bass drum	• Probably entered in real time because it's not exactly in time – less mechanical • Aligned with bass drum using a snap/quantise value of 8T (triplet quavers)
1	25-30	Trumpet	Dynamic variation	**Progressive increase in velocity (1) followed by descending gradient (1) of expression/controller 11 data (1).**
2	26-31	Cabasa	Accents	**Variation in velocity (1)** **Velocity rises for first 2 notes (1), final note in pattern much weaker (1)** **Second note has higher velocity (2)** **Accented note has high velocity value (2)**
3	55-56	Drums	Grace note (flam) on snare	**Short note placed just before the beat (1)** **Grace/additional note has <u>low(er) velocity</u> (1)** **Drawn in using a graphical editor (1)**
4	65-67	Voice	Panning effect	**Pan/controller 10 used (1) NOT 'PANNING'** **Pans across the whole range (1)** **Will have been input in a graphical editor with a pencil/gradient/line/sine curve tool (1)** **Values increase and decrease (1)**
5	69-74	Electric Guitar	Switching between palm mute and 'ordinary'	**Very short note values <u>used for muted parts</u> (1)** **Long notes values <u>used for 'ordinary' articulation</u> (1)** **Modulation (1) added for expression during longer notes/for 'ordinary' (1)** **Uses a program change (1)**
6	115-122	Synthesiser	Portamento effect	**Pitch bend used (1)** **Pitch dips at the end of each phrase (1) and just before each phrase starts (1)** **Bends up a whole tone in places (1)** **Input using pitchbend wheel/joystick or in graphical editor/key editor/hyper edit (1)** **Overlapping of notes for smoothness (1)**
				(2 marks x 6)