Write your name here

Surname	Other names

Edexcel GCE

Centre Number	Candidate Number

Music Technology

Advanced
Unit 4: Analysing and Producing

Tuesday 4 June 2013 – Morning
Time: 2 hours (plus 10 minutes setting up time)

Paper Reference
6MT04/01

You must have: CD ROM containing component audio files, blank CD for burning finished tasks, headphones or monitor speakers, computer workstation and music production software.
Supplementary page containing Figure 1 for question 4(b).

Total Marks

Setting up time

1. Open a new project in the music production software using 16 bit/44.1kHz sample rate.
2. Save the project as **'unit4_your candidate number' (e.g. *unit4_1234*)** in the folder designated by your centre.
3. Set the metronome to **125 bpm**.
4. Import "drums.wav" from the CD ROM to a **stereo** audio track in the music production software, aligned with the beginning of bar 1.
5. Ensure that the drums are audible and play in time with the metronome. The drums begin in bar 4.

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Write your answers to Section A in the spaces provided in this question paper.
- Save your audio files for Questions 2 & 3 in Section A, and Question 5 in Section B to your project folder within the 2 hour examination time.
- You must ensure that the left and right earpieces of your headphones are worn correctly.
- Access to the internet or local network is **not** permitted.

Information

- The total mark for this paper is 80.
- The marks for **each** question are shown in brackets
  – *use this as a guide as to how much time to spend on each question.*
- Questions labelled with an **asterisk** (*) are those where the quality of your written communication will be assessed
  – *you should take particular care on these questions with your spelling, punctuation and grammar, as well as the clarity of expression.*

Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

Turn over ▶

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P 4 2 3 2 4 A 0 1 1 6

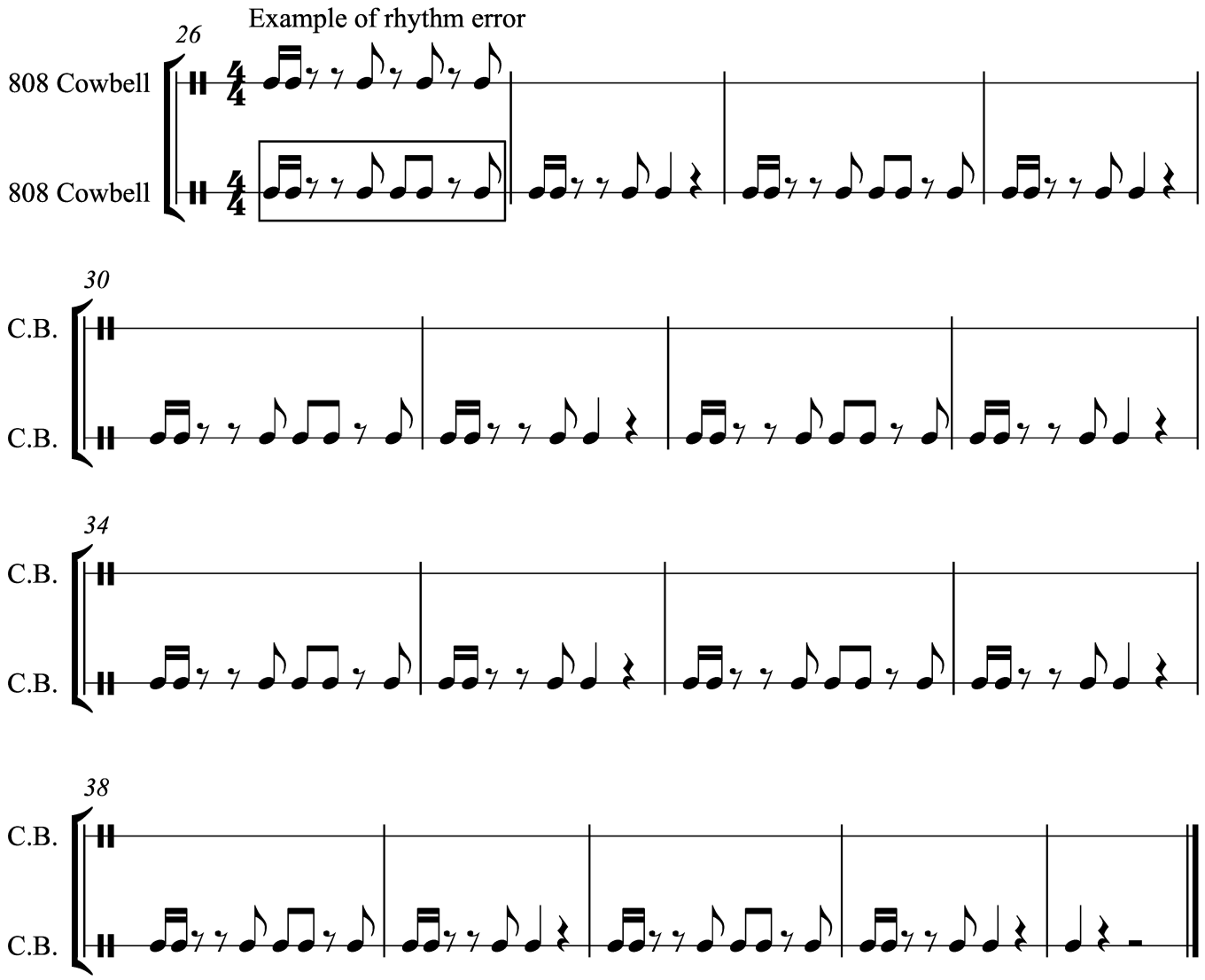
PEARSON

SECTION A

Answer ALL questions.

Write your answers in the spaces provided or, where appropriate, choose an answer and put a cross in the box ☒. If you change your mind about an answer, put a line through the box ☒ and then mark your new answer with a cross ☒.

1 Listen to the drum part that you have imported and compare it with the score below.



(a) The 808 cowbell starts at **bar 26**. There are **two** rhythmic errors in the notation. An example of a rhythm error is given in bar 26.

- Identify **two** rhythmic errors in the notation. Circle the **entire bar**.
- Notate the correct rhythm for the **entire bar** on the blank stave above.

(4)

(b) What style are the drums in?

Put a cross ☒ in the correct box.

(1)

☒ **A** Hip Hop

☒ **B** Indie

☒ **C** Punk

☒ **D** Rock n Roll

Import "guitar.wav" from the CD ROM to a new **stereo** track in your music production software. Ensure that the beginning of this audio track is aligned with the start of bar 1. The guitar begins playing in bar 2.

(c) Complete the table below. Referring to the chord symbols, identify the notes in each chord. An example is given.

Chord	Notes in chord
Am^7	*A C E G*
D^6	**(2)**
F^9	**(3)**

(d) This guitar was recorded DI, then processed with a guitar amplifier simulator.
In the table below, describe the function of each control. An example is given.

Control	Description
Bass	• Low shelf EQ • Boosts/cuts the low frequencies
Drive	**(2)**
Microphone position	**(2)**
Tremolo rate	**(2)**

(e) Which control has been adjusted from bar 26 onwards in the guitar part?

Put a cross ☒ in the correct box.

(1)

- ☒ **A** Bass
- ☒ **B** Drive
- ☒ **C** Microphone position
- ☒ **D** Tremolo

(Total for Question 1 = 17 marks)

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2 Import the MIDI file "bass.mid" from the CD ROM to a new **MIDI/instrument** track in your music production software. This track is a complete bass part. Align the part so that the bass begins playing at the start of bar 4.

Import "bass example.wav" from the CD ROM to a new **stereo** audio track in your music production software. This track illustrates how the first bar of the bass should sound. **You should not use this audio in your final mix.**

(a) Create a bass sound that matches the timbre "bass example.wav".

- Ensure that the octave matches the example.
- Use a square wave without any added effects.
- Ensure that the filtering matches the example.
- Copy the envelope used in the example.

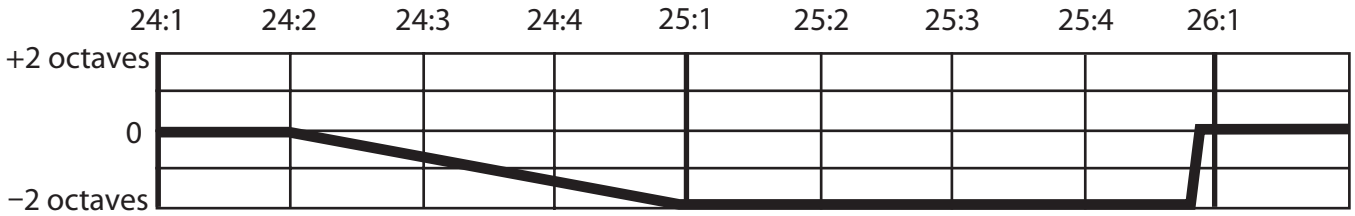
(4)

(b) Correct the pitches in **bar 30** of the bass part so they match the loop in the rest of the chorus.

(2)

(c) In **bars 24 and 25**, add pitchbend as indicated in the diagram below. Ensure that the pitchbend does not affect the remainder of the bass part.

(4)



(d) Quantise has been used on this bass part to tighten the rhythm. Identify the most appropriate quantise value for this part.

Put a cross ☒ in the correct box.

(1)

☒ **A** 1/16

☒ **B** 1/12

☒ **C** 1/8

☒ **D** 1/4

(e) In the table below, identify the pitch and velocity of each note indicated.
An example has been given.

Position	Pitch	Velocity
Bar 21, beat 1	D	127
Bar 22, beat 1	(1)	(1)
Bar 23, beat 1	(1)	(1)

Solo the completed bass part. Turn off the metronome click. There should be no added effects on the bass other than those used to create the bass part in question 2.

Bounce/export the completed bass part as a single 16 bit/44.1kHz stereo .wav file to the designated folder on your computer.

Name it 'task1_ your candidate number' (e.g. *task1_1234*).

(Total for Question 2 = 15 marks)

3 Import "vocal.wav" from the CD ROM to a new **stereo** track in your music production software. This track is a complete vocal part. Ensure that the beginning of this audio track is aligned with the start of bar 1. The vocal begins at the end of bar 3.

(a) Compression with a high ratio has been applied to the vocal to reduce the dynamic range. Illustrate this compression on the graph below using the following steps:

(i) Complete the labelling of both axes.

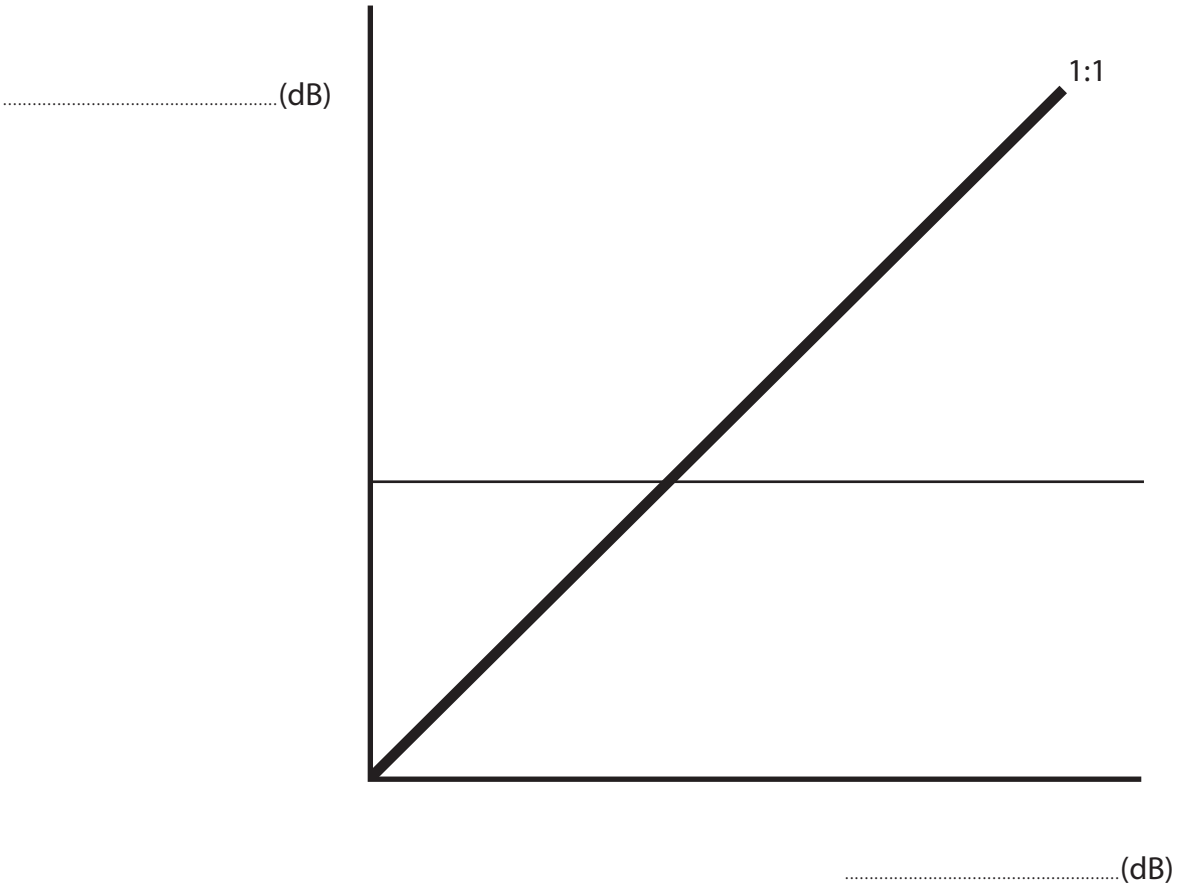
(2)

(ii) Label the threshold.

(1)

(iii) The unprocessed signal is shown with a ratio of 1:1. Draw a line to represent high-ratio compression. Label it with a suitable compression ratio.

(2)



(b) A gate has been used on the vocals. Briefly describe what a gate does.

(2)

.....

.....

(c) From **bar 26** onwards, how has the robotic effect been produced on the vocal?

(3)

.....

.....

.....

(d) The "vocal.wav" file has some intrusive background talking and noise on the final few phrases. Clean up the vocal track so that only the singing can be heard. The sung vocal line must continue to the end of bar 41.

(4)

Solo the completed vocal part. Turn off the metronome click and bypass any effects.

Bounce/export the completed vocal part as a single 16 bit/44.1kHz stereo .wav file to the designated folder on your computer.

Name it 'task2_ your candidate number' (e.g. *task2_1234*).

(Total for Question 3 = 14 marks)

4 Answer EITHER Question 4(a) OR 4(b). You are advised to keep your answer to a maximum of 250 words. You may write in continuous prose, bullet points or use a table to communicate your answer.

Indicate which question you are answering by marking a cross in the box ☒.
If you change your mind, put a line through the box ☒
and then indicate your new question with a cross ☒.

Question 4(a) ☒ **Question 4(b)** ☒

EITHER

*(a) Explain how vinyl records and cassette tapes are used to store and play back music and describe the problems that the consumer would encounter with them. Identify the benefits of audio CDs compared to these earlier formats.

OR

*(b) Figure 1 shows an audio interface. Explain the features and specifications that can be seen in the picture.

Figure 1 is provided on a supplementary page.

(Total for Question 4 = 16 marks)

TOTAL FOR SECTION A = 62 MARKS

SECTION B

5 You should now have the following tracks imported on the computer:
drums, guitar, bass and vocal.

Follow the instructions below to produce a final stereo mix.

(a) Apply a high pass filter to the **guitar** part.

- Only **bars 14 and 15** should be affected.
- Use a high pass filter with a cut-off frequency of 1000Hz and a steep roll-off.
- The filter should not affect the remainder of the guitar part.

(3)

(b) Apply a gate to the **guitar** part.

- Set the side chain so that the gate is triggered by the drum part.
- Set the gate so that the rhythm of the guitar changes; only playing when the drums play.
- The gate must mute the guitar during the rests within the drum part.
- Ensure that there are no false triggers of the gate and the guitar chords are not cut too short.
- The gating should suit the style of the music.

(3)

(c) Apply automated panning to the word "*stereo*" in **bar 23** of the **vocal** part.

- The word "*stereo*" should move smoothly across the stereo field from right to left.
- Ensure that all other bars are panned to the centre.

(3)

(d) Apply reverb to **each** of the four parts.

- Use a 1.5 second reverb time.
- The reverb should be clearly audible but not intrusive.
- The guitar should have the most reverb and the bass the least.

(3)

(e) Balance the mix.

- The balance should suit the style of the music.
- Ensure that all of the tracks can be heard clearly.

(3)

(f) Produce a final stereo mix.

- Ensure that the mix output is at as high a level as possible.
- It should be free from distortion.
- **Do not** limit or compress the mix output.
- Ensure that the beginning of the music and the reverb tail are not cut off.
- Ensure that silences at the beginning and end do not exceed **one** second.

(3)

Turn off the metronome click.

Bounce/export the completed mix as a single 16 bit/44.1kHz stereo .wav file to the designated folder on your computer.

Name it 'task3_ your candidate number' (e.g. *task3_1234*).

(Total for Question 5 = 18 marks)

TOTAL FOR SECTION B = 18 MARKS
TOTAL FOR PAPER = 80 MARKS

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Edexcel GCE

Music Technology

Advanced
Unit 4: Analysing and Producing

Tuesday 4 June 2013 – Morning
Figure 1 for question 4(b)

Paper Reference
6MT04/01

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P 4 2 3 2 4 A

PEARSON

Figure 1


MIC 1
-20dB
48V
MIC 2
-20dB
48V
MIC 3
-20dB
48V
MIC 4
-20dB
48V
PHONES
VOLUME
ANALOG IN
1 2 3 4
CLOCK
44.1
48
88.2
96
OPTICAL
IN
1-8
1-4
5-8
96kHz
OUT
MIDI
IN
OUT
FIREWIRE
MAIN OUT
R
L
4
3
2
1
24-BIT 96kHz ANALOG