Write your name here

Surname	Other names

Centre Number | Candidate Number

Edexcel GCE

Music Technology

Advanced
Unit 4: Analysing and Producing

Friday 10 June 2011 – Afternoon
Time: 2 hours (plus 10 minutes setting up time)

Paper Reference
6MT04/01

You must have: CD ROM containing component tracks, blank CD for burning finished mixes, headphones or monitor speakers, computer workstation and music production software.

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 **109 bpm**.
4. Import "synth pad.wav" from the CD ROM to the first available mono audio track in the music production software.
5. Ensure that the synth pad part is audible and plays in time with the metronome. The music begins in bar 2.

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 hours 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 with your spelling, punctuation and grammar, as well as the clarity of expression, on these questions.*

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.

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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 synth pad part that you have imported.

(a) Which term best describes the playing technique of the synth pad from **bars 7-17**?

Put a cross in the correct box:

(1)

☒ **A** largo

☒ **B** legato

☒ **C** pizzicato

☒ **D** staccato

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

Chord	Notes of chord
Example: Em	E G B
G	
C	
A^7	

(1)

(1)

(2)

(c) Describe how subtractive synthesis has been used to shape the synth pad timbre in bars 2-5.

.....

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.....

.....

(4)

(d) Import "drums.wav" from the CD ROM to a new mono audio track in your music production software. This track is a complete drum pattern. Ensure that the beginning of this audio track is aligned with the start of bar 1. The drums begin playing in bar 2.

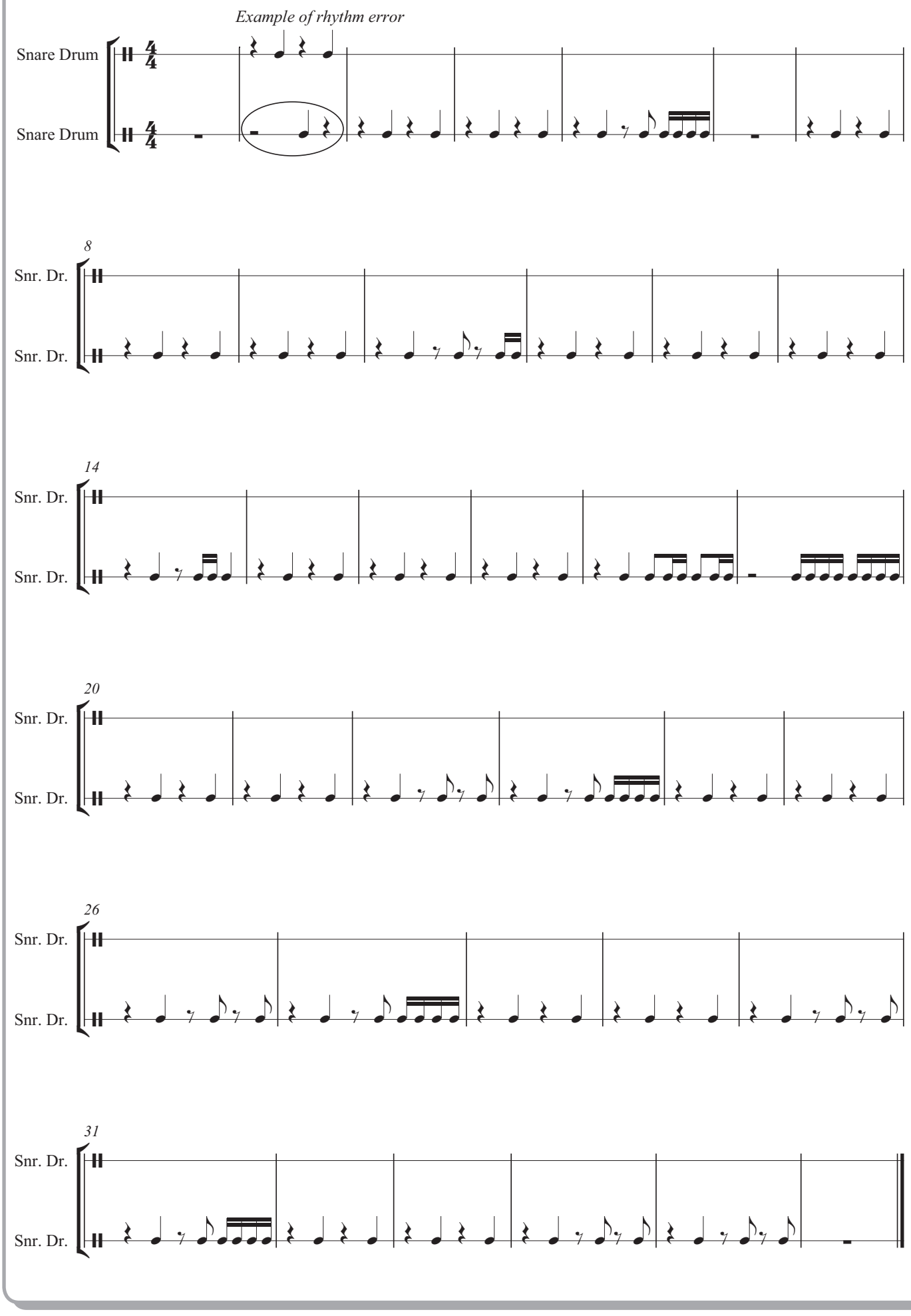
Listen to the drum part you have imported and compare it with the snare drum notation opposite.

Between bars **7–24** there are **two** rhythmic errors in the snare drum notation. An example of a rhythm error is given in bar 2.

- 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)

(Total for Question 1 = 13 marks)



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2 Import "vocal main.wav" from the CD ROM to a new 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 singing begins in bar 6.

(a) The vocal part has been compressed and equalised. On the graph below, illustrate the EQ applied to the vocal part using the following steps:

(i) Label the two axes.

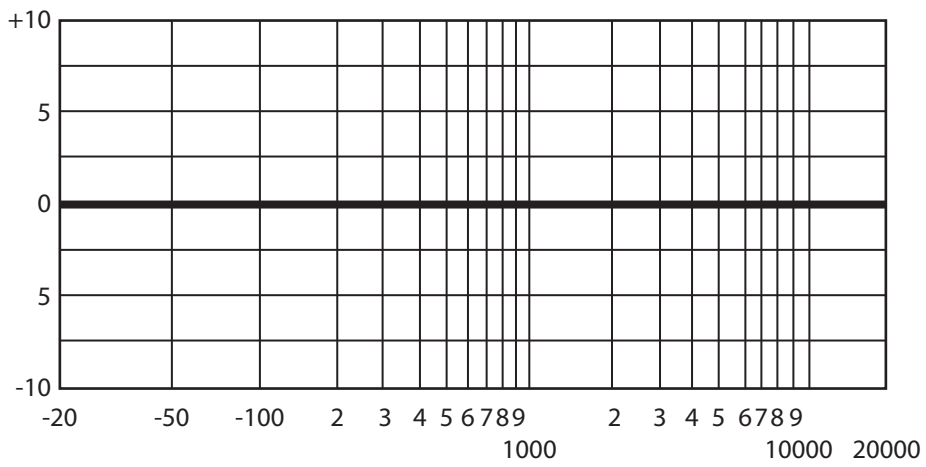
(2)

(ii) Draw a suitable high-pass filter that would remove rumble.

(3)

(iii) Draw the high frequency boost that has been used to bring the vocals forward in the mix.

(3)



(b) When joining two sections of audio together, a click is often heard. Explain what causes this click either in writing or as a labelled diagram.

(2)

(c) Identify and describe **two** different techniques for preventing a click when joining two sections of audio together using music production software.

1 .....

.....

(2)

2 .....

.....

(2)

(d) The "vocal main.wav" file has some intrusive noise on the final few notes.

Import "vocal end.wav" from the CD ROM to a new mono audio track in your music production software.

Using appropriate production and editing tools, replace the noisy end section of "vocal main.wav" with the corresponding section of "vocal end.wav".

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

(Total for Question 2 = 18 marks)

3 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 in bar 2.

Import "bass example.wav" from the CD ROM to a new mono audio track in your music production software. This track is bar 2 of the bass to illustrate how the bass should sound. **You should not use this audio in your final mix**.

(a) Create a bass sound that matches the timbre and octave used in "bass example.wav".

- Use a saw wave mixed with a square wave an octave below.
- There should be no filtering.
- Copy the envelope used in the example.

(5)

(b) In bar 6 of the bass track, a MIDI controller has been used to add musical expression to the performance. Describe the controller in the table below.

MIDI controller number	MIDI controller name	Highest value reached in bar 6
(1)	**(1)**	**(1)**

(c) In **bar 13** of the bass track, the note lengths are inappropriately short. Edit the notes so that they match the articulation of the previous bar.

(2)

(d) From **bar 20** onwards, the bass plays out of tune. Explain why.

.....

.....

.....

(3)

(e) Correct the MIDI programming error to ensure that the bass plays in tune throughout.

(2)

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

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

(Total for Question 3 = 15 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) Reverberation has been used to enhance music since the birth of recording. Describe the different techniques and technologies that have been used to apply reverberation to recordings from the 1920s to the present day.

OR

*(b) Microphones have been used since the late 1800s to record sound. Describe what a microphone does. Explain how a dynamic microphone and a condenser microphone function and identify the benefits of each type.

(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:
synth pad, drums, vocal and bass.

Follow the instructions below to produce a final stereo mix:

(a) Apply a gate to the **synth pad** track.
- Using the gate, remove the chords that have been recorded 5dB quieter in bars 7-17.
- The rhythm of the synth pad will change, gradually building through the verse.
- Ensure that there are no false triggers of the gate.

(3)

(b) Apply an automated filter to the **bass part**.
- Only **bars 7-19** should be affected.
- Use a low pass filter with a steep roll-off.
- The cut-off frequency should be set low in bar 7, but the bass must still be clearly audible.
- Gradually increase the cut-off frequency so that the effect continues to build until bar 19.

(3)

(c) Apply panning to the snare fill in the **drum part**.
- Only **bar 19** should be affected; all other bars should be panned to the centre.
- The snare hits on beat 2 should be panned hard left.
- The snare hits on beat 3 should be panned hard right.
- The snare hits on beat 4 should be panned to the centre.

(3)

(d) Apply reverb to **each** of the four tracks.
- Use a 1.5 second reverb time.
- The reverb should not be intrusive.
- The vocals should have more reverb than the instrumental parts.

(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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