Write your name here

Surname	Other names

Pearson Edexcel GCE

Centre Number	Candidate Number

Music Technology

Advanced
Unit 4: Analysing and Producing

Thursday 5 June 2014 – Morning
Time: 2 hours (plus 10 minutes setting up time)

Paper Reference
6MT04/01

You must have: CD ROM containing component 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 **131 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 playing 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.
- You must save your exported 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 ▶

P43369A

1/1/1/1

P 4 3 3 6 9 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 (a) Listen to the drum part that you have imported. Quantise has been used to tighten the rhythm. Identify the most appropriate quantise value for this part.

Put a cross ☒ in the correct box.

(1)

☐ **A** 1/32

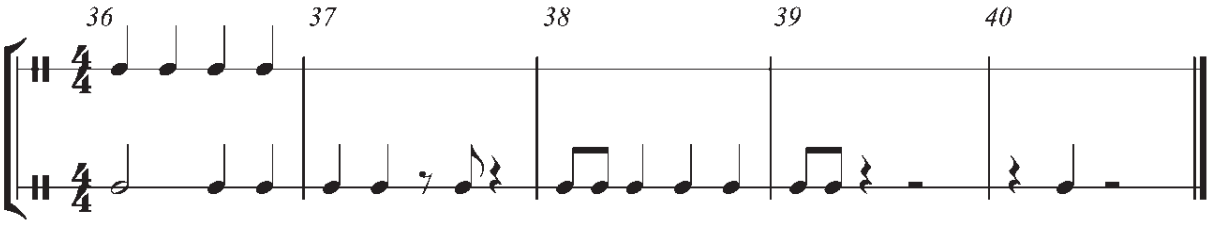
☐ **B** 1/16

☐ **C** 1/12

☐ **D** 1/8

(b) **Bars 36–40** of the kick drum are notated below with **one** rhythm error in each bar. Using the blank stave, correctly notate the kick drum rhythm for **bars 37–40**, using rests as required. Bar 36 has been completed for you as an example.

(4)



Import "synth riff.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 synth riff begins playing in bar 2.

(c) Listen to **bars 2–5** of the synth riff.

(i) During **beats 1 and 2** of each bar, which aspect of the sound is being automated?

Put a cross ☒ in the correct box.

(1)

☐ **A** LFO rate

☐ **B** Pitch bend

☐ **C** Sustain level

☐ **D** Volume

(ii) During **beat 4** of each bar, which aspect of the sound is being automated?

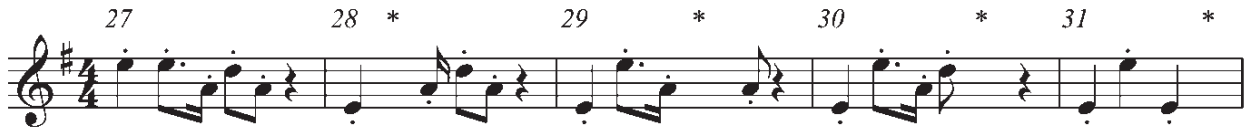
Put a cross ☒ in the correct box.

(1)

- ☒ **A** Filter cutoff frequency
- ☒ **B** Portamento
- ☒ **C** Resonance
- ☒ **D** Waveform

(d) (i) **Bars 27–31** of the synth are notated below. Fill in the **four** missing pitches (each marked by an asterisk).

(4)



(ii) In the score above, what articulation marking is used? Put a cross ☒ in the correct box.

(1)

- ☒ **A** Accent
- ☒ **B** Legato
- ☒ **C** Staccato
- ☒ **D** Tenuto

(e) Reverb has been applied to the synth between **bars 27–31**. The graph below shows how the original sound and the reverb decays.

(i) Label the two axes.

(2)

(ii) Label the pre-delay time.

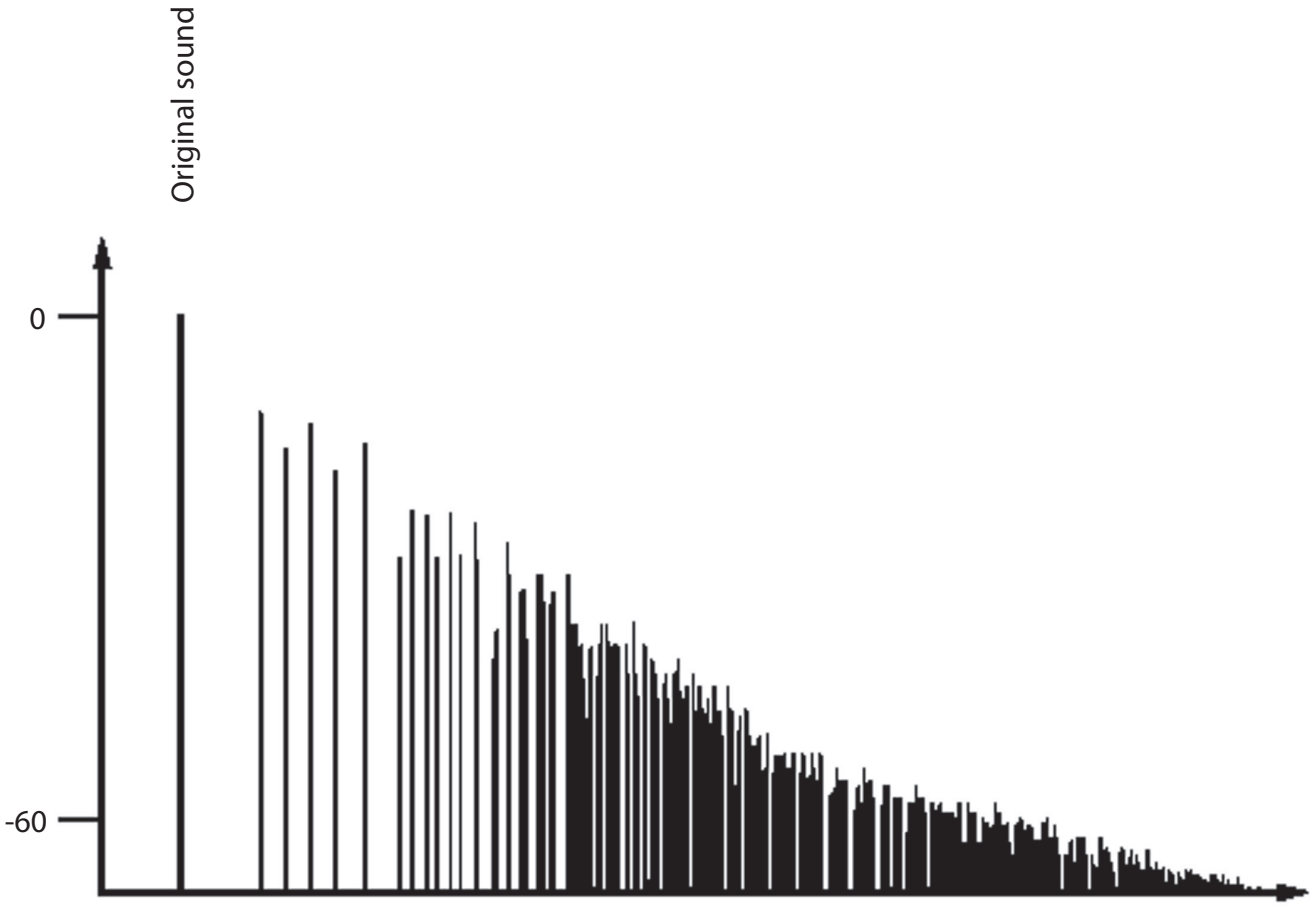
(1)

(iii) Label the early reflections.

(1)

(iv) Label the reverb time (RT_{60}).

(1)



(Total for Question 1 = 17 marks)

BLANK PAGE

2 Import the MIDI file "chords.mid" from the CD ROM to a new **MIDI/instrument** track in your music production software. Align the part so that the chords begin playing at the start of bar 10.

Import "chords example.wav" from the CD ROM to a new **stereo** audio track in your music production software. This file illustrates how **bars 27–31** of the chords should sound. **You should not use this audio in your final mix.**

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

- Ensure that the octave matches the example.
- Use a saw wave without any added effects.
- There should be no filtering.
- Copy the envelope used in the example.

(4)

(b) In the table below, identify the velocity of each note indicated in the first chord of **bar 32**. An example has been given.

Pitch	Velocity
A3	**123**
D4	**(1)**
E4	**(1)**
E5	**(1)**

(c) Identify the highest pitch bend value in **bar 18**.

(1)

.....

(d) **In bar 19**, the chords play out of tune. Correct the MIDI programming error to ensure that the chords play in tune throughout.

(2)

(e) List **four** MIDI messages used in MIDI files.

(4)

1 .....

2 .....

3 .....

4 .....

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

Bounce/export the completed chords 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 = 14 marks)

3 Import "vocal main.wav" from the CD ROM to a new **mono** 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 on the second beat of bar 2.

(a) The vocal was recorded with a condenser microphone using the switch settings shown in the table below. Identify the switches, describe what they do and explain why the settings have been selected for this recording. An example has been given.

Switch	Identify the switch	Describe what this switch does and explain why this setting has been selected
Example: 	High Pass Filter	• Engages filter to cut frequencies below 80 Hz • Reduces proximity effect • Removes rumble
(i) 	**(1)**	**(3)**
(ii) 	**(1)**	**(3)**

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

Import "vocal end.wav" from the CD ROM into 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)

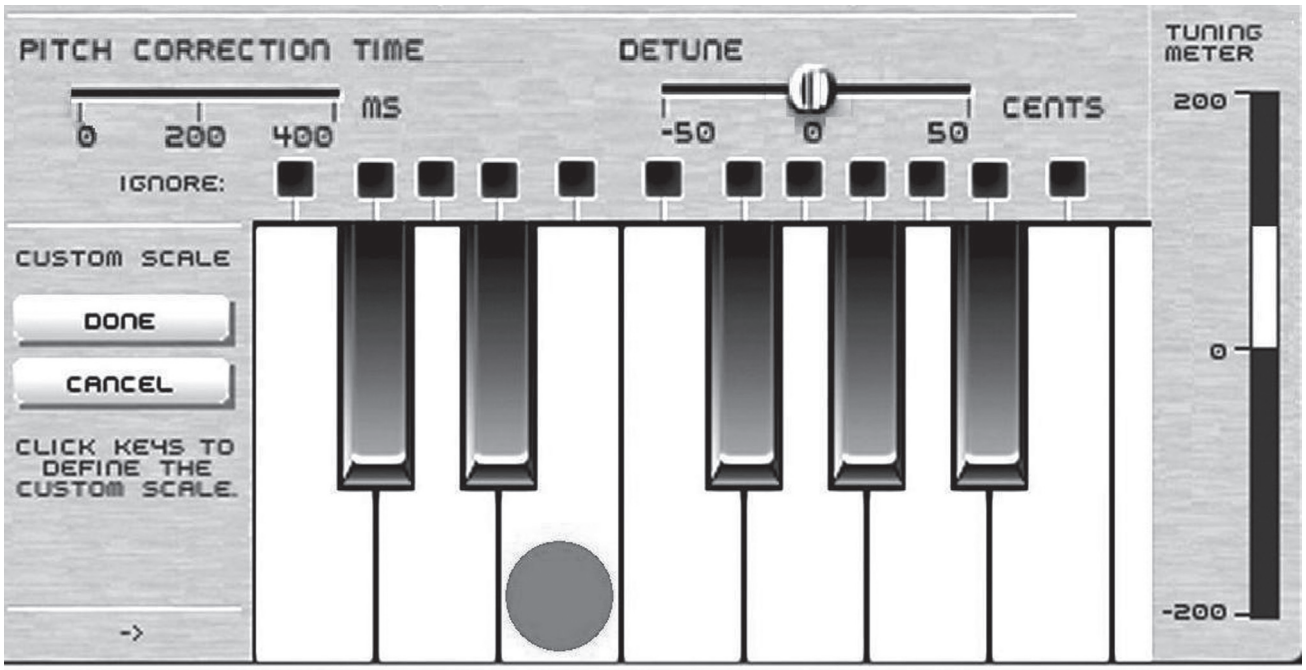
(c) Pitch correction has been used on the vocals during **bars 14–17** to create a robotic effect.

(i) On the picture below, indicate the slider position for the "Pitch Correction Time" that has been used to create a robotic effect.

(1)

(ii) A custom scale of **three** notes has been used to restrict the pitches the pitch correction will tune to. One of the notes (E) has been given as an example. Indicate the other **two** notes on the picture below.

(2)



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 = 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, use bullet points, use a table and/or use diagrams 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) What is EQ? Describe the following types of EQ found on a software plug-in: high pass filter; low shelf; band; high shelf; low pass filter. Give **one** practical use for each type. Describe the differences between parametric EQ and graphic EQ.

OR

*****(b) Figure 1 shows an analogue synthesiser from the 1970s. Many of the controls are similar to those of a software synthesiser plug-in. Explain the function of the controls seen in Figure 1. Identify the benefits of using a software synthesiser plug-in rather than 1970s analogue technology.

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, synth riff, chords and vocals.

Follow the instructions below to produce a final stereo mix.

(a) Compress the **vocals**.

- The compression should suit the style of the music.
- Ensure that all parts of the vocal can be heard above the other parts.
- Ensure that the dynamics of the performance are level throughout and do not jump out of the mix.

(3)

(b) Apply an automated filter to the **chords**.

- Only **bars 10–26** should be affected.
- Use a low pass filter with a steep roll-off.
- The cutoff frequency should be set low in bar 10, but the chords must still be clearly audible.
- Gradually increase the cutoff frequency so that the effect continues to build until the end of bar 26.

(3)

(c) Apply a mono delay effect to the **vocals**.

- Use a quaver synced delay.
- Use 40% feedback so that the delay gradually fades.
- The delay should be clearly audible.
- Ensure that the delay is not intrusive.

(3)

(d) Apply automated panning to the word "*too*" in **bars 26–27** of the **vocals**.

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

(3)

(e) Balance the mix.

- 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 delay repeats 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

BLANK PAGE

BLANK PAGE

BLANK PAGE

Pearson Edexcel GCE

Music Technology

Advanced
Unit 4: Analysing and Producing

Thursday 5 June 2014 – Morning
Figure 1 for question 4(b)

Paper Reference
6MT04/01

Do not return Figure 1 with the question paper.

Turn over ▶

P43369A

1/1/1/1

P 4 3 3 6 9 A

PEARSON

Figure 1


Roland
SYNTHESIZER 099
SH-099
MODULATOR
DELAY TIME
RATE
RANDOM (S/H)
VCO
TUNE
MOD
RANGE
WAVEFORM
NOISE
PULSE WIDTH
VCF
CUTOFF FREQ
RESONANCE
ENV FOL'R
ENV
MOD
VCA
HOLD
GATE
ENV
ENV
A
D
S
R
VOLUME
POWER
ON
OFF
PORTAMENTO
VCO
VCF
BENDER