Write your name here

Surname	Other names

Pearson Edexcel GCE

Centre Number | Candidate Number

Music Technology

Advanced
Unit 4: Analysing and Producing

Wednesday 7 June 2017 – Afternoon
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 **124 bpm**.
4. Import "vocal.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 vocals are audible and play in time with the metronome. The vocals begin 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 3(a) & 3(c) 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 ones 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.
- Try to answer every question.
- Check your answers if you have time at the end.

Turn over ▶

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P 4 9 1 1 5 A 0 1 1 2

Pearson

SECTION A

Answer ALL questions. Write your answers in the spaces provided.

Some questions must be answered with a cross in a 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 vocals that you have imported.

(a) Give **one** reason why a pop shield was used when recording this vocal.

(1)

.....

(b) Give **one** reason why a cardioid microphone was used when recording this vocal.

(1)

.....

(c) A valve pre-amp was used when recording this vocal. Explain why a recording engineer would decide to use valve technology.

(2)

.....

.....

(d) Notate the rhythm of the filtered vocal part in bars 22-25.

(4)

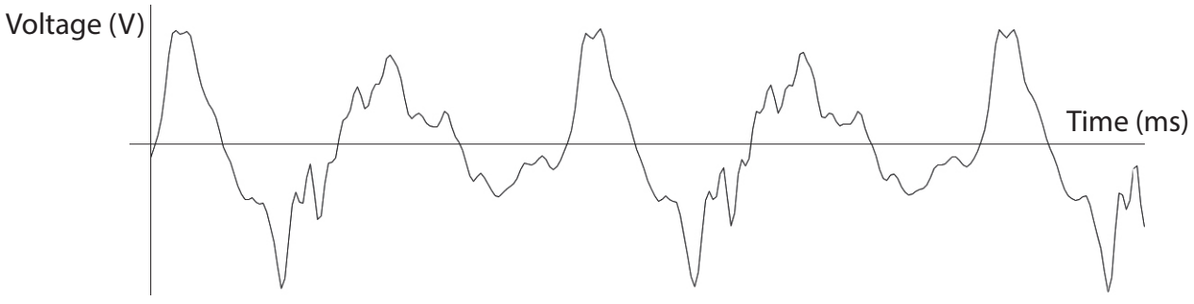
(e) (i) Identify the effect added to the vocal in bars 20-21.

(1)

.....

(ii) The graph below shows the original vocal waveform. On top of the original waveform, draw the change in the waveform shape once the effect in 1(e)(i) has been added.

(2)



(f) Compression has been applied to the vocal. The table below shows the settings that were used. Explain why these settings were chosen.

Parameter	Setting	Explanation
Ratio	15:1	.... **(2)**
Gain make-up	+15dB	.... **(2)**

(Total for Question 1 = 15 marks)

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

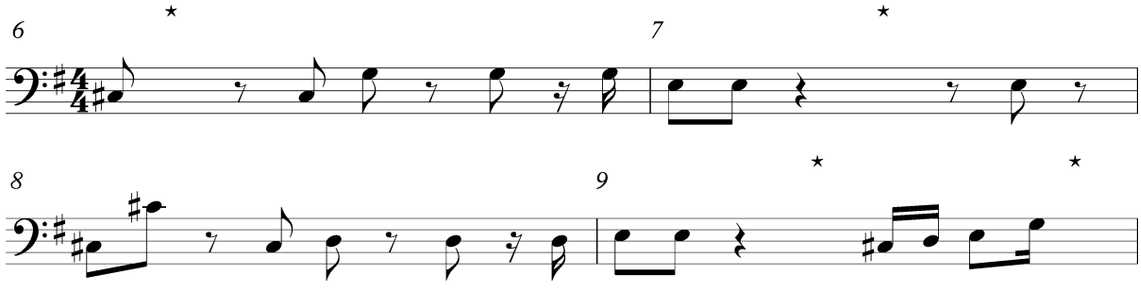
(a) Listen to the bass part that you have imported. Identify the pitch bend range used on the bass on the last note of bar 5.

(1)

.....

(b) Bars 6–9 of the bass part are notated below. Fill in the four missing pitches (each marked by an asterisk).

(4)



(c) Compare bar 7 with bar 11. Describe how synthesis is used in bar 11 to change the timbre on beat 3.

(4)

.....

.....

.....

.....

(d) Describe how the envelope is used to gradually change the timbre throughout bars 26-29.

(2)

.....

.....

(e) Identify the synthesiser parameter which suddenly increases to maximum in bar 30.

(1)

.....

(f) Explain why the envelope settings are causing clicks in bar 18.

(2)

.....

.....

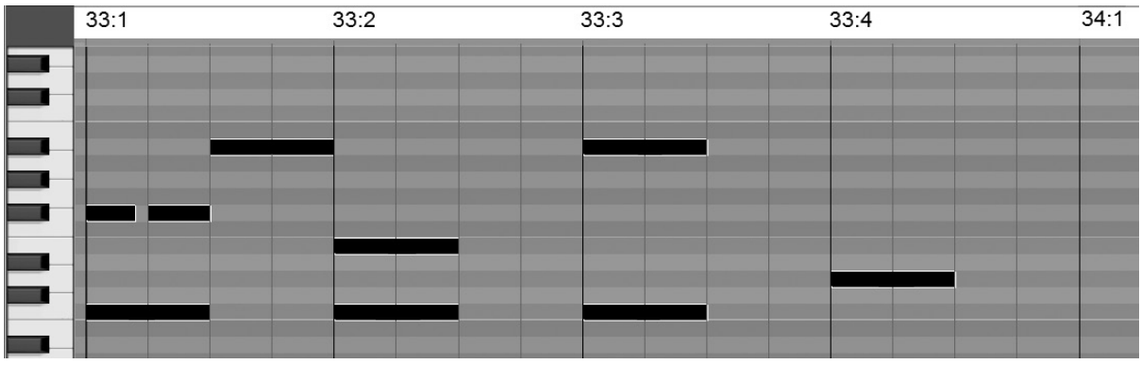
(Total for Question 2 = 14 marks)

3 Import "drums.wav" from the CD ROM to a new **stereo** audio track in your music production software. Ensure that the beginning of this audio track is aligned with the start of bar 1. The drums begin at the start of bar 2. This is a partially complete drum track.

(a) Using the drum sounds from "drums.wav", complete the drum part in bar 33 using the rhythm shown in the grid editor below.

(8)

Key	
C	Kick drum
D	Reverse snare
E	Snare
F#	Closed hi-hat
A#	Open hi-hat



Solo the completed drum part. Turn off the metronome click.

Bounce/export the completed drum 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*).

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 6.

Import "chords example.wav" from the CD ROM to a new mono audio track in your music production software. The file illustrates how bar 9 of the chords should sound. **You should not use this audio in your final mix**.

(b) In bar 9, pitch bend is used.

(i) Identify the lowest pitch bend value in bar 9.

(1)

.....

(ii) Identify the position, in bars:beats:semiquavers:ticks, of when the pitch bend resets to centre.

(1)

..... : ..... : ..... : .....

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

(i) Ensure that the octave matches the example.

(1)

(ii) Use a square wave with no effects.

(1)

(iii) Ensure the pitch bend range matches the example.

(1)

(iv) Copy the amplitude envelope.

(1)

(v) Copy the filter envelope.

(3)

Solo the completed chords part. Turn off the metronome click.

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

(Total for Question 3 = 17 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, a table and/or 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 ☒.

Chosen question number: **Question 4(a)** ☒ **Question 4(b)** ☒

EITHER

***** (a) Explain how a recording engineer would edit and mix takes for a natural sounding lead vocal. Explain how editing takes would have been different when using analogue tape in the 1980s.

(16)

OR

***** (b) Figure 1 shows a channel on an analogue mixing desk. Many of the controls are similar to those on a digital audio workstation track. Explain the function of the controls and specifications that can be seen in the picture. Give **one** practical use for each control.

Figure 1 is provided on a supplementary page.

(16)

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(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, chords, bass and vocal.

Follow the instructions below to produce a final stereo mix.

(a) Listen to the effect on the **vocals** in **bars 2–3**. Recreate that effect in **bars 4–5**.

(3)

(b) Apply automated panning to the **vocals**.

- Only **bars 6–12** should be affected; all other bars should panned to the centre.
- Both "Hey my" phrases should be panned hard left.
- Both "Wake up" phrases should be panned hard right.

(3)

(c) Apply an automated filter to the **vocals**.

- Only **bars 26–29** should be affected.
- Use the filter type as heard in **bars 22–25**.
- At the beginning of bar 26, the cutoff frequency should be set the same as heard in bar 25.
- Gradually increase the cutoff frequency so that the effect continues to build until the end of bar 29.

(3)

(d) Gate the **bass**.

- Only **bars 26–29** should be affected.
- The drums track should trigger the side chain of the gate so that the bass plays in time with the hi-hats.

(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 and the end of the music 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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