

STUDENT NUMBER Letter

VCE VET MUSIC INDUSTRY: SOUND PRODUCTION

Aural and written examination

Friday 17 November 2017

Reading time: 11.45 am to 12.00 noon (15 minutes)

Writing time: 12.00 noon to 1.30 pm (1 hour 30 minutes)

QUESTION AND ANSWER BOOK

Structure of book

<i>Section</i>	<i>Number of questions</i>	<i>Number of questions to be answered</i>	<i>Number of marks</i>
A	7	7	25
B	18	18	75
			Total 100

- Students are permitted to bring into the examination room: pens, pencils, highlighters, erasers, sharpeners and rulers.
- Students are NOT permitted to bring into the examination room: blank sheets of paper and/or correction fluid/tape.
- No calculator is allowed in this examination.

Materials supplied

- Question and answer book of 13 pages
- An audio compact disc containing musical excerpts for Section A

Instructions

- Write your **student number** in the space provided above on this page.
- You may write at any time during the running of the audio compact disc and after it stops.
- Answer **all** questions in the spaces provided.
- All written responses must be in English.

Students are NOT permitted to bring mobile phones and/or any other unauthorised electronic devices into the examination room.

SECTION A**Instructions for Section A**

The audio compact disc plays throughout Section A. In **Questions 1–7**, audio excerpts are played twice. The announcer explains how the audio excerpt(s) for each question will be played. Answer **all** questions in the spaces provided.

Question 1 (4 marks)

- a. After a reference tone of frequency 1 kHz, identify the frequency of each tone being played, in order, from this list: 125 Hz, 250 Hz, 500 Hz, 2 kHz, 4 kHz, 8 kHz 3 marks

1. _____

2. _____

3. _____

- b. Being able to identify and control frequencies is an important skill needed in both live sound reinforcement and sound recording.

What type of signal processor is used by sound engineers to control frequency balance? 1 mark

Question 2 (4 marks)

The following excerpt contains a sequence of three waveforms.

- a. Identify each waveform that is played, in order, from this list: sine wave, square wave, triangle wave, white noise, pink noise 3 marks

1. _____

2. _____

3. _____

- b. Which waveform identified in **part a.** consists of only one specific frequency? 1 mark

Question 3 (4 marks)

The following acoustic guitar excerpt is in two parts. Each part uses a different method to record the same performance.

Identify the two different methods used to capture the performance and explain how each method results in a different quality of sound.

1. _____

2. _____

Question 4 (3 marks)

The following trombone excerpt is in three parts. The first part has had no effect added to it. The second and third parts have had the same kind of effect added to them.

a. What effect has been added to the second and third parts? 1 mark

b. What parameter has been changed in the third part? 1 mark

c. In what way has the parameter been changed in the third part? 1 mark

Question 5 (4 marks)

The following four song excerpts are in two parts. The first part of each song excerpt is the original mix. The second part of each song excerpt is a variation of the original mix.

a. Describe which aspect of the mix has changed in the second part. 1 mark

b. Describe which aspect of the mix has changed in the second part. 1 mark

c. Identify what kind of effect has been applied in the second part. 1 mark

d. Identify which channel function has been used in the second part. 1 mark

Question 6 (3 marks)

The following drum excerpt is in two parts.

- a. Identify the signal processor that has been applied to the second part. 1 mark

- b. What basic audio characteristic does the signal processor identified in **part a.** affect? 1 mark

- c. Describe how the signal processor identified in **part a.** has altered the second part of the excerpt. 1 mark

Question 7 (3 marks)

The following excerpt from a live PA system contains an audio problem.

Describe the audio problem in the excerpt and provide two possible solutions to address the problem.

Problem _____

Solution 1 _____

Solution 2 _____

SECTION B**Instructions for Section B**

Answer **all** questions in the spaces provided.

Question 1 (4 marks)

Provide two relevant reasons why the technique of ‘close miking’ is used in each context given below.

- Recording studio

Reason 1 _____

Reason 2 _____

- Live sound reinforcement

Reason 1 _____

Reason 2 _____

Question 2 (4 marks)

Suggest two benefits of each production method given below.

- Recording a drum kit with a single high-quality microphone

Benefit 1 _____

Benefit 2 _____

- Recording a drum kit with multiple different microphones

Benefit 1 _____

Benefit 2 _____

Question 3 (3 marks)

- a. Name the accessory in front of the microphone shown in the image above. 1 mark

- b. Identify a situation where the accessory named in **part a.** would be used and explain why this accessory would be necessary. 2 marks

Question 4 (5 marks)

A producer was recently interviewed about the production techniques used in a recording session. The following is an extract from the interview.

Well, we were tracking the drums and I found a track which, on its own, didn't sound very good. When I tried the track with all of the other mics up, it brought a really unusual quality to the overall sound. I compressed the track heavily and ran it through a guitar amp simulator that had its overdrive turned up. With a bit of careful balancing, we ended up with a great drum sound. I discovered later that the track was being fed by an inexpensive dynamic mic from a previous session, where it had been used for talkback and had been left in the corner on the studio floor. We could have spent ages trying to achieve that sound using plug-ins or by trying different mic positions. Later, I used the technique again when doing the guitar overdub, except this time I panned the track to the opposite side of the dry signal.

Based on the extract above, describe what is meant by the following terms.

- Overdub _____
- Overdrive _____
- Talkback _____
- Dry signal _____
- Plug-in _____

Question 5 (2 marks)

Hum interference is a waveform consisting of a 50 Hz fundamental plus other harmonics.

- a. What causes hum interference? 1 mark

- b. What kind of equaliser could effectively remove hum interference? 1 mark

Question 6 (2 marks)

During a mixing session, the artist requests changes to the sound of the snare drum to make it more punchy and to remove the ringing sound.

What techniques could the mix engineer use to fulfil the artist's request?

To make the sound more punchy _____

To remove the ringing sound _____

Question 7 (8 marks)

- a.** Outline four steps in a process for carrying out a line check for a live act onstage. 4 marks

1. _____

2. _____

3. _____

4. _____

- b.** Many issues may occur during a line check.

Give a reason why each of the following issues may occur.

4 marks

- There is no signal from the overhead condenser microphones above the drum kit.

- There is a microphone on the top and bottom of the snare drum. When both faders are brought up, the snare sound becomes thinner.

- The active DI for the acoustic guitar is functioning correctly, but when the guitarist plays, there is no signal.

- Bass guitar sound is coming out of the bass amp onstage, but there is no signal from the DI, which is functioning correctly.

Question 8 (5 marks)

- a.** Describe how audible feedback is caused in a live sound context. 1 mark

- b.** Suggest two ways of avoiding the audible feedback described in **part a.** 2 marks

1. _____

2. _____

- c.** Outline two negative consequences of the audible feedback described in **part a.** 2 marks

1. _____

2. _____

Question 9 (4 marks)

During a live music performance, the singer complains that their vocal level is going up and down in the foldback. The PA equipment is working properly.

Give two reasons why the vocal level is varying and a solution for each.

Reason 1 _____

Solution 1 _____

Reason 2 _____

Solution 2 _____

Question 10 (8 marks)

The table below shows an equipment list for a live sound event, with the maximum power consumption of each item. There is only one 10 amp general purpose outlet (GPO) available for the entire PA system.

Item of equipment	Power consumption (max.)
mixing desk	60 W
graphic equaliser for front-of-house (FOH)	20 W
graphic equaliser for foldback	20 W
microphones	n.a.
stage box/multicore	n.a.
2 × active speakers for FOH	300 W each
1 × active speaker for foldback	300 W
2 × active subwoofers with built-in crossover	1200 W each

- a. What is the maximum total power consumption of all of the equipment items combined? 1 mark

- b. What is the maximum power available from a single 10 amp GPO? 1 mark

- c. Suggest a solution to the problem of not having enough power available. 1 mark

- d. What might happen if all of the equipment were switched on at the same time? 1 mark

- e. List the relevant equipment for FOH sound in the correct order of signal flow, starting with the microphones and ending with the FOH speakers. Do not list any piece of equipment more than once. 4 marks

1. *microphones* _____

2. _____

3. _____

4. _____

5. _____

6. *FOH speakers* _____

Question 11 (2 marks)

When standing outside a live music venue, the sound that can be heard from the music being performed inside is muffled.

- a. Identify the frequency range that is most likely to be heard outside the building, compared with inside. 1 mark

- b. Explain why the frequency range identified in **part a.** is more audible outside the building than other frequencies. 1 mark

Question 12 (3 marks)

During a digital audio workstation (DAW) mix where multiple plug-ins are being used, the master bus and a number of track meters are clipping. The recorded levels of the tracks are all just below 0 dBFS (decibels relative to full scale).

List three things that could be checked to establish the cause of the clipping.

1. _____

2. _____

3. _____

Question 13 (12 marks)

The table below identifies common problems experienced when mixing a multi-track recording.

Complete the table by identifying a suitable signal processor/plugin for each problem and two key parameters that could be used to address the problem.

Problem	Signal processor/plugin	Key parameters
The kick drum sound is ringing on too long.		1. _____ 2. _____
The hi-hat track has bass guitar spill in it.		1. _____ 2. _____
The floor tom sounds thin.		1. _____ 2. _____
The level of the acoustic piano varies too much.		1. _____ 2. _____

Question 14 (3 marks)

Adding reverb to a multi-track mix can be done using two different methods:

Method A – The same kind of reverb plug-in is inserted on each track.

Method B – Sends are created on each track, which route signals to a reverb channel where the reverb plug-in is inserted.

- a.** List two advantages of Method B. 2 marks

1. _____

2. _____

- b.** What should the mix parameter be set to in the reverb plug-in in Method B? 1 mark

Question 15 (3 marks)

An audio engineer is mixing a song for a small acoustic band. The song was recorded in the middle of a large, empty gymnasium. The vocals were re-recorded a month later due to a technical problem with the original recording. The new vocals were recorded in an acoustically dead space and do not fit in with the instruments.

Suggest an effect that could be added to the vocals and two key parameters that could be adjusted in order to create the impression that the vocals were recorded in the same space as the instruments.

Added effect _____

Key parameter 1 _____

Key parameter 2 _____

Question 16 (2 marks)

In commercially recorded music, voices and instruments are often double tracked.

a. What is an advantage of double tracking? 1 mark

b. Why is it that double-tracked instruments, such as double-tracked electric guitars, are often panned hard left and hard right? 1 mark

Question 17 (3 marks)

A completed multi-track recording of a performance will be mixed later by a specialist mix engineer.

List three important pieces of information about the recording that need to be provided to the specialist mix engineer.

1. _____

2. _____

3. _____

Question 18 (2 marks)

Two microphones are pointed at the same sound source. One microphone is 5 cm away; the other is 10 cm away. The combined output of both microphones results in the unwanted effect of 'phasing'.

Suggest two solutions to avoid phasing.

1. _____

2. _____