

STUDENT NUMBER Letter

VCE VET MUSIC: SOUND PRODUCTION

Aural and written examination

Thursday 2 November 2023

Reading time: 9.00 am to 9.15 am (15 minutes)

Writing time: 9.15 am to 10.45 am (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	23	23	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 20 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 (5 marks)

The following mix excerpts are of a drum kit, double bass and piano. The mix excerpts are in two parts. The second part has had an aspect of the mix altered.

- a. Which instrument track has been muted in the second part of Excerpt 1a? 1 mark

- b. Name the type of equalisation that has been applied to the piano in the second part of Excerpt 1b. 1 mark

- c. Name the type of effect that has been applied to the second part of Excerpt 1c. 1 mark

- d. Which instrument track has been muted in the second part of Excerpt 1d? 1 mark

- e. Which instrument track has been muted in the second part of Excerpt 1e? 1 mark

Question 2 (2 marks)

The following excerpt is of a baritone saxophone recorded with two microphones. The excerpt is in two parts. The first part has been recorded with one microphone only. The second part has been recorded with both microphones.

- a. Name the problem that has occurred in the second part. 1 mark

- b. Explain the cause of this problem. 1 mark

Question 3 (6 marks)

The following mix excerpts are of an electronic kick drum, hi-hats, hand claps, synth bass and synth trumpet. The mix excerpts are in two parts. The second part has had an aspect of the mix altered.

- a. Which instrument track has been muted in the second part of Excerpt 3a? 1 mark

- b. What type of effect has been applied to the synth trumpet in the second part of Excerpt 3b? 1 mark

- c. Which instrument track has been muted in the second part of Excerpt 3c? 1 mark

- d. Which instrument track has been muted in the second part of Excerpt 3d? 1 mark

- e. What type of effect has been applied to the hand claps in the second part of Excerpt 3e? 1 mark

- f. What type of effect has been applied to the second part of Excerpt 3f? 1 mark

Question 4 (3 marks)

The following mix excerpts are of an electric guitar. The mix excerpts are in one part. An effect has been switched in and out during each excerpt.

- a. Name the type of effect that has been switched in and out during Excerpt 4a. 1 mark

- b. Name the type of effect that has been switched in and out during Excerpt 4b. 1 mark

- c. Name the type of effect that has been switched in and out during Excerpt 4c. 1 mark

Question 5 (3 marks)

The following excerpts are of white noise. The excerpts are in two parts. The second part of each excerpt has had a filter applied to it.

- a. What type of filter setting has been applied in the second part of Excerpt 5a? 1 mark

- b. What type of filter setting has been applied in the second part of Excerpt 5b? 1 mark

- c. What type of filter setting has been applied in the second part of Excerpt 5c? 1 mark

Question 6 (4 marks)

The following mix excerpts are of a drum kit, synth double bass and electronic keyboard. The mix excerpts are in two parts. The second part has had an aspect of the sound altered.

- a. Name the MIDI process used to automatically correct the problem with the electronic keyboard in the second part of Excerpt 6a. 1 mark

- b. Name the part of the drum kit that has had reverb applied to it in the second part of Excerpt 6b. 1 mark

- c. What has changed in the second part of Excerpt 6c? 1 mark

- d. What type of performance/MIDI controller has been applied to the electronic keyboard in the second part of Excerpt 6d? 1 mark

Question 7 (2 marks)

The following excerpt is of a drum kit loop audio file. The mix excerpt is in one part. There is a problem with the editing in the excerpt.

- a. Describe the problem with the editing in the excerpt. 1 mark

- b. Suggest an editing method that would correct the problem in the excerpt. 1 mark

SECTION B**Instructions for Section B**

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

Question 1 (1 mark)

Circle the frequency that would have the highest musical pitch.

200 Hz

4 kHz

20 Hz

Question 2 (1 mark)

How many decibels of sound pressure level (dB SPL) is generally perceived as a doubling of loudness?

Question 3 (2 marks)

Name two common transducers used in the music industry.

Transducer 1 _____

Transducer 2 _____

Question 4 (1 mark)

At what volume in dB SPL is the threshold of pain generally perceived to occur?

Question 5 (1 mark)

A digital audio workstation (DAW) project has been set to record at 48 kHz and 24 bits.

What is the maximum dynamic range that can be recorded in this project?

Question 6 (7 marks)

Complete the table below by defining each term in the context of using a DAW.

DAW term	Definition
arming a track	
record loop function	
solo	
track marker (or locator)	
group track function	
L-R pan	
quantise	

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Question 7 (2 marks)

A band has completed the recording and mixing of a number of songs to be released as an album. The last step is for the songs to be mastered.

Aside from improving the sound, what are **two** things a mastering engineer would do to the finished recordings?

Question 8 (8 marks)

Examine the following collection of microphones and DIs and answer the questions on page 9.

<p>A.</p>  <p>cardioid dynamic</p>	<p>B.</p>  <p>large diaphragm condenser</p>	<p>C.</p>  <p>active DI</p>
<p>D.</p>  <p>omnidirectional dynamic</p>	<p>E.</p>  <p>bidirectional passive ribbon</p>	<p>F.</p>  <p>large diaphragm cardioid dynamic</p>
<p>G.</p>  <p>pencil condenser</p>	<p>H.</p>  <p>cardioid dynamic</p>	<p>I.</p>  <p>lectern condenser</p>

Sources: A: shure.com; B: audio-technica.com; C: behringer.com; D: shure.com; E: royerlabs.com; F: shure.com; G: en-de.neumann.com; H: shure.com; I: sea.audio-technica.com

- a.** From the collection shown on page 8, which **four** microphones or DIs require phantom power to operate? 4 marks
-
-
- b.** Explain why condenser microphones tend to be more sensitive to higher frequencies. 1 mark
-
- c.** Which **one** of the microphones is the best choice for placement in a kick drum for a loud rock band? 1 mark
-
- d.** Explain what is meant by ‘microphone polar pattern’. 1 mark
-
-
- e.** Condenser microphones frequently feature a –10 dB pad setting, while dynamic microphones are unlikely to. 1 mark
Explain why this is the case.
-
-

Question 9 (4 marks)

At a pre-production meeting to plan an outdoor live-performance event, the audio crew are discussing ways to ensure a safe workplace.

Complete the table below, suggesting ways that the crew might reduce or remove each of the given hazards.

Type of hazard	Example of hazard	Hazard reduction or removal
manual handling	lifting and moving heavy equipment on and off stage	
electricity	damaged electrical cable	
high sound pressure levels	sustained loud sounds	
physical injury	negotiating backstage areas in low-light environments	

Question 10 (2 marks)

What are two advantages of using a 32-way, 30-metre digital multicore instead of a 32-way, 30-metre analog multicore?

Advantage 1 _____

Advantage 2 _____

Question 11 (4 marks)

A sound crew are setting up a PA system in a venue for a live performance. There will be two bands performing: a headline act and a support act. Before the audience is allowed to enter, a line check will take place followed by a sound check.

- a. Explain why a line check typically occurs before a sound check. 1 mark

- b. Give two reasons why conducting a sound check can improve the quality of the performance. 2 marks

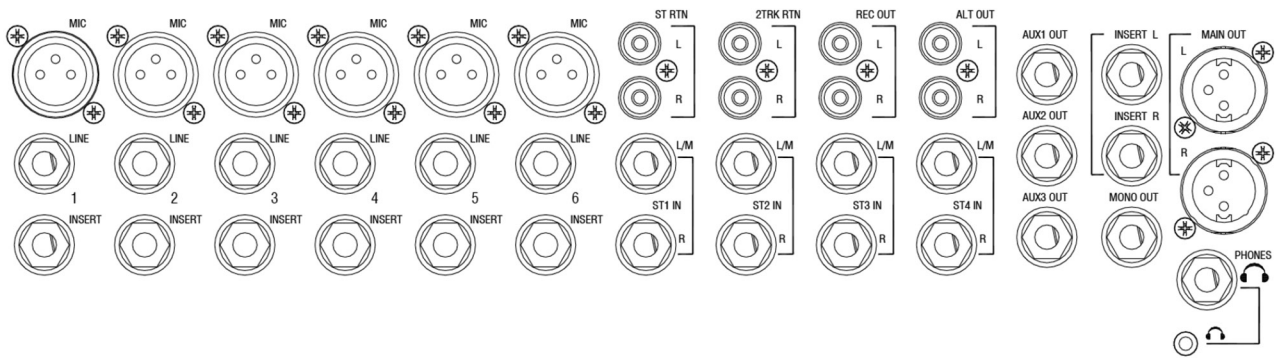
Reason 1 _____

Reason 2 _____

- c. Explain why the headline act would usually sound check before the support act. 1 mark

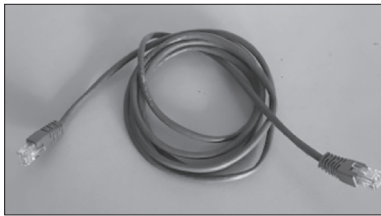
Question 12 (4 marks)

The images below show a patch panel of a mixing desk and a collection of various cables, labelled A.–F.

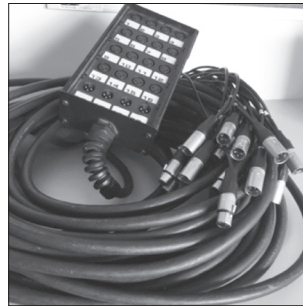


Source: adapted from allen-heath.com

A.



B.



C.



D.



E.



F.



Use the images to answer the following questions. Each of the cables can only be used once.

- a. Which **one** of the cables shown above should be used to patch an external compressor as an unbalanced insert? 1 mark

- b. Which **one** of the cables shown above should be used to patch multiple analog inputs from the stage to the mixing desk? 1 mark

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- c. Which **one** of the cables shown on page 12 should be used to patch the unbalanced mono output from an effects unit to the mixing desk? 1 mark

- d. Give **one** mixing desk output shown on page 12 that should be used to send signal to an unbalanced FX processor from any channel. 1 mark

Question 13 (4 marks)

List two advantages and two disadvantages of using radio microphones as part of a live event with a PA system.

Advantage 1 _____

Advantage 2 _____

Disadvantage 1 _____

Disadvantage 2 _____

Question 14 (2 marks)

A sound engineer connects eight active foldback speakers to one standard general purpose outlet (GPO). Each speaker draws two amps of current.

- a. What problem may occur as a result of this setup? 1 mark

- b. Suggest a way that the problem identified in **part a.** could be avoided, while still using all eight active foldback speakers. 1 mark

Question 15 (2 marks)

List two different formats of digital audio cable.

Digital audio cable format 1 _____

Digital audio cable format 2 _____

Question 16 (2 marks)

Give two advantages of using a tablet device to set up or operate a PA with a digital mixing desk.

Advantage 1 _____

Advantage 2 _____

Question 17 (2 marks)

When engineering a live event, you hear a very loud high-frequency sound coming from the lead singer's foldback monitor as soon as you unmute the channel.

a. What is the common name for this sound? 1 mark

b. What action could be taken to prevent this sound when unmuting the channel? 1 mark

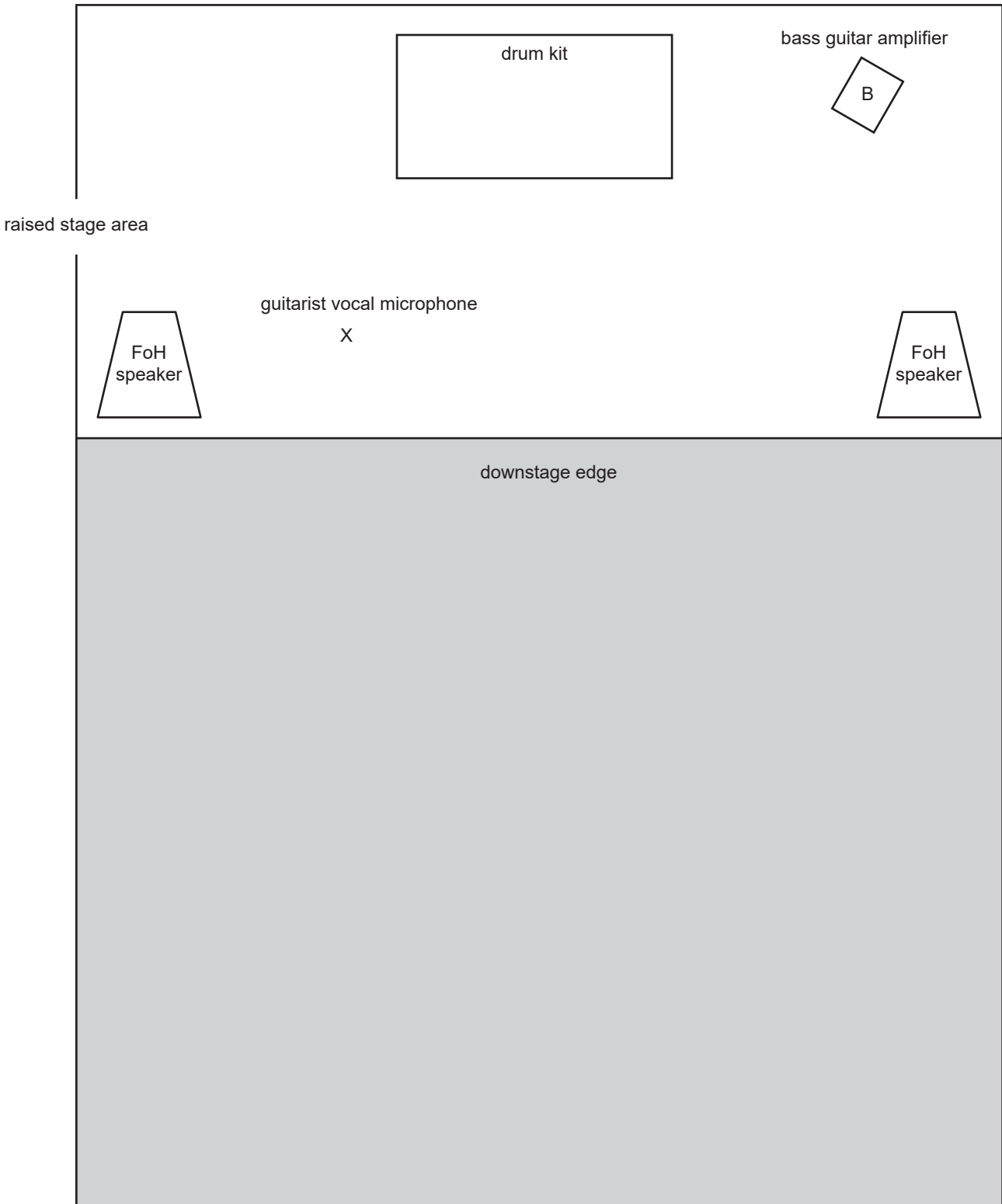
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SECTION B – continued
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Question 18 (10 marks)

Below is a stage plan for a three-piece band with a bass player, drummer and guitarist. The drummer and guitarist are also vocalists. The event will take place in a hall with a raised stage and a PA system that includes front-of-house (FoH) speakers and foldback wedges for stage monitoring. The band members need to be able to hear their own instruments without the assistance of the foldback wedges.



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- a. Using the symbols below, mark the location of the drummer's vocal microphone, guitar amplifier and both foldback wedges on the stage plan provided on page 16. 4 marks

Symbol	Description
X	drummer's vocal microphone
	guitar amplifier
	foldback wedge
	foldback wedge

- b. Complete the table below by writing the correct instrument, DI or mic type for the performance shown on the stage plan on page 16. 3 marks

Channel number	Instrument	DI or mic type
1	kick drum	large diaphragm dynamic mic
2		dynamic instrument mic
3	overhead 1	
4	overhead 2	pencil condenser
5	bass guitar	DI
6	guitar	dynamic instrument mic
7	drum vocal	
8	guitar vocal	dynamic vocal mic

c. What term is typically given to the shaded area shown on the stage plan on page 16? 1 mark

d. Give two differences in construction and design between a dynamic instrument microphone and a dynamic vocal microphone. 2 marks

Difference 1 _____

Difference 2 _____

Question 19 (9 marks)

The image shown below is of a typical compressor plug-in used in a DAW.



Source: adapted from apple.com/au

a. What is the purpose of the central meter on this compressor? 1 mark

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b. Explain the function of the following controls on this compressor.

8 marks

Control	Function
threshold	
ratio	
make up	
knee	
attack	
release	
limiter	
mix	

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Question 20 (1 mark)

Recording studios often have two sets (or more) of monitor speakers.

Explain how listening through different monitors can improve a mix.

Question 21 (1 mark)

Explain why using a reference track can improve the sound of a recording studio mix.

Question 22 (3 marks)

A studio mix has been described as ‘too boomy’ by the client.

- a. What frequency range may need to be adjusted? 1 mark

- b. List two methods an engineer may use to adjust these frequencies in the mix. 2 marks

Method 1 _____

Method 2 _____

Question 23 (2 marks)

Give two reasons why music played through headphones sounds different to the same music played through monitor speakers.

Reason 1 _____

Reason 2 _____

