SUPERVISOR TO ATTACH
PROCESSING LABEL HERE

Write your **student number** in the boxes above. **Letter**

VET Music: Sound Production

Question and Answer Book

VCE Examination – Wednesday 13 November 2024

- Reading time is **15 minutes**: 9.00 am to 9.15 am
- Writing time is **1 hour 30 minutes**: 9.15 am to 10.45 am

Materials supplied

- Question and Answer Book of 20 pages
- Audio compact disc containing musical excerpts for Section A

Instructions

- You may write at any time during the running of the audio compact disc and after it stops.

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

Contents

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Section A (8 questions, 25 marks) 2–7

Section B (19 questions, 75 marks) 8–19

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Section A

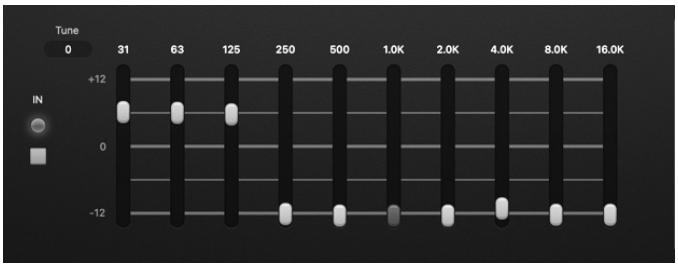
Instructions

- The audio compact disc plays throughout Section A. In **Questions 1–8**, 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.
- Write your responses in English.

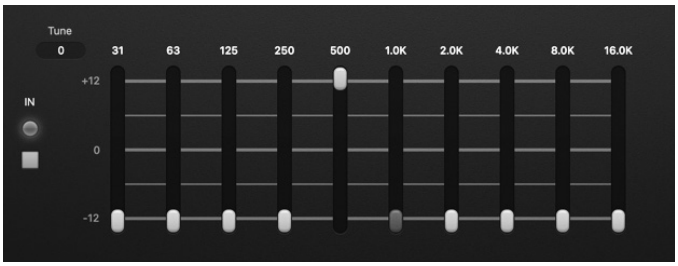
Question 1 (4 marks)

You will hear mix excerpts in two parts. The diagrams below, labelled A, B, C and D, indicate the equaliser (EQ) settings that have been applied to the second part.

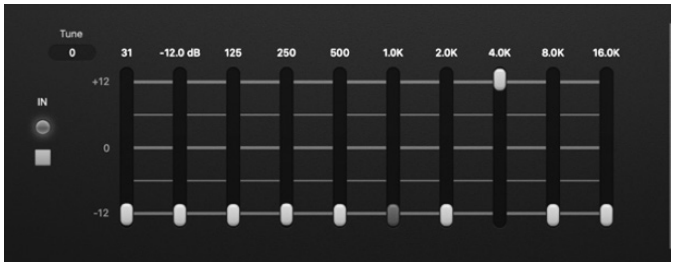
A.



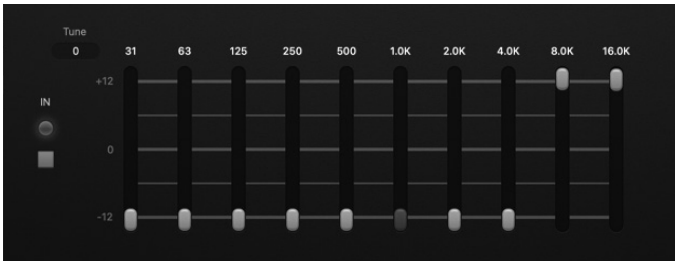
B.



C.



D.



Source: All images adapted from Logic Pro, Apple Inc.

Do not write in this area.

a. Which EQ setting has been used for the second part of Excerpt 1a? 1 mark

_____

b. Which EQ setting has been used for the second part of Excerpt 1b? 1 mark

_____

c. Which EQ setting has been used for the second part of Excerpt 1c? 1 mark

_____

d. Which EQ setting has been used for the second part of Excerpt 1d? 1 mark

_____

Do not write in this area.

Question 2 (6 marks)

The following mix excerpts are from a multi-track recording of a band playing live in a studio. The recording consists of a drum kit, bass guitar, guitar, plucked guitar, vocals and a clap / finger snap track. Each mix excerpt is in two parts. The second part has had an aspect of the mix altered.

a. Which track has been muted in the second part of Excerpt 2a? 1 mark

b. Which track has been muted in the second part of Excerpt 2b? 1 mark

c. Which track has been muted in the second part of Excerpt 2c? 1 mark

d. **i.** What type of plug-in processor has been applied to the kick drum in the second part of Excerpt 2d? 1 mark

ii. What aspect of the kick drum envelope is altered by the plug-in in the second part of Excerpt 2d? 1 mark

e. What plug-in effect has been added to the vocal in the second part of Excerpt 2e? 1 mark

Do not write in this area.

Question 3 (2 marks)

The following voice-over excerpts are in two parts. The second part has had an editing or plug-in process applied.

a. What editing process has been applied to the second part of Excerpt 3a? 1 mark

_____

b. What type of dynamics processor has been applied to the second part of Excerpt 3b to reduce the sibilance? 1 mark

_____

Question 4 (4 marks)

The following saxophone excerpts are in two parts. The second part has had an effect applied or altered.

a. What type of effect has been applied to the second part of Excerpt 4a? 1 mark

_____

b. What type of effect has been applied to the second part of Excerpt 4b? 1 mark

_____

c. What effect parameter has been increased in the second part of Excerpt 4c? 1 mark

_____

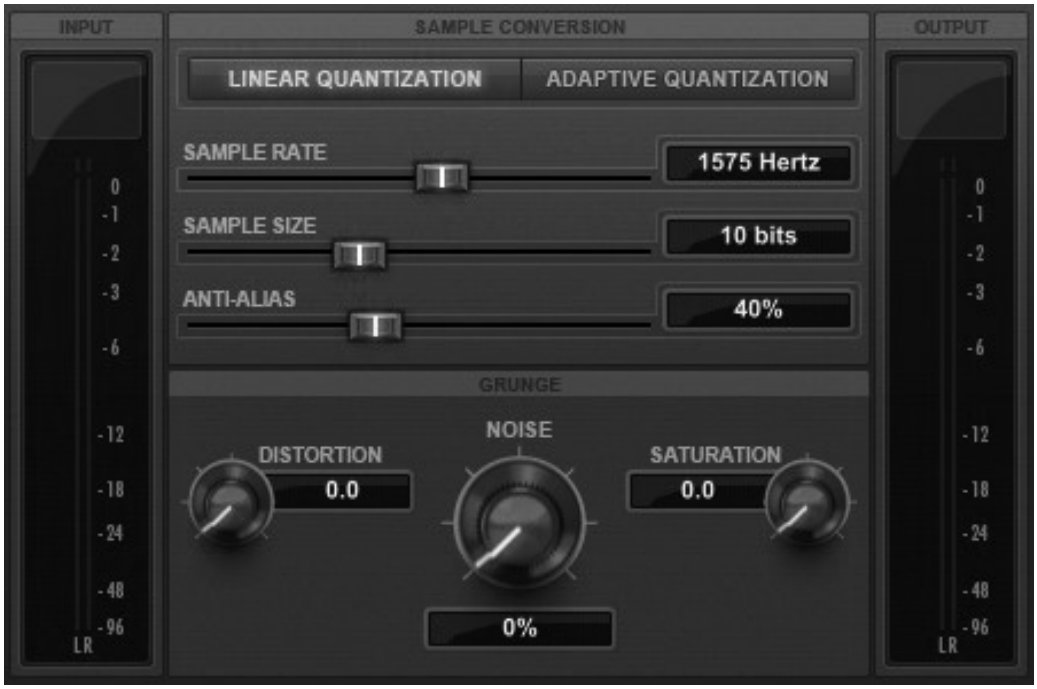
d. What effect has been added to the second part of Excerpt 4d? 1 mark

_____

Do not write in this area.

Question 5 (2 marks)

The following drum kit excerpt is in two parts. The recording was made with a digital audio workstation (DAW) set to record at better than CD quality. The second part has had a plug-in applied to the mix of the drum kit. The image shown below is a screen shot of the plug-in and the settings used. The audio excerpt applies to both **parts a** and **b**.



Source: Adapted from Pro Tools, Avid Technology, Inc.

a. What digital audio artefact has been introduced by decreasing the sample rate to 1575 Hz in the second part of Excerpt 5? 1 mark

b. What digital audio artefact has been introduced by decreasing the sample size (also known as resolution) to 10 bits in the second part of Excerpt 5? 1 mark

Question 6 (2 marks)

The following excerpt is of MIDI drums and MIDI piano. The excerpt is in three parts. The second and third parts have had a MIDI event or editing process applied to the drums.

a. What MIDI process has been applied in the second part of Excerpt 6? 1 mark

b. What aspect of the MIDI track data has been edited in the third part of Excerpt 6? 1 mark

Do not write in this area.

Question 7 (3 marks)

The following excerpts are of a sound engineer tuning a PA system in a live music venue. Each excerpt is in one part. The sound engineer has placed a vocal mic on the stage and is slowly increasing the volume until feedback occurs. Each feedback tone falls within one of the bands shown below.

20 Hz to 63 Hz

80 Hz to 250 Hz

315 Hz to 1 kHz

1.25 kHz to 4 kHz

5 kHz to 20 kHz

a. What band does the feedback frequency fall into in Excerpt 7a? 1 mark

b. What band does the feedback frequency fall into in Excerpt 7b? 1 mark

c. What band does the feedback frequency fall into in Excerpt 7c? 1 mark

Question 8 (2 marks)

The following electric guitar excerpts are in two parts. The first part features the guitar with distortion, reverb and tremolo effects. In the second part, an additional guitar effects pedal has been added to the recording chain.

a. What type of guitar effects pedal has been added in the second part of Excerpt 8a? 1 mark

b. What type of guitar effects pedal has been added in the second part of Excerpt 8b? 1 mark

End of Section A

Do not write in this area.

Section B

Instructions

- Answer **all** questions in the spaces provided.
- Write your responses in English.

Question 1 (1 mark)

What is the unit of measurement for perceived loudness of sound?

_____

Question 2 (1 mark)

What is the speed of sound in metres per second in air at 20 °C?

_____

Question 3 (1 mark)

Which has the longer wavelength: 100 Hz or 5 kHz?

_____

Question 4 (2 marks)

a. When an audio interface converts audio from analogue to digital, what characteristic of the sound is represented by the bit depth? 1 mark

_____

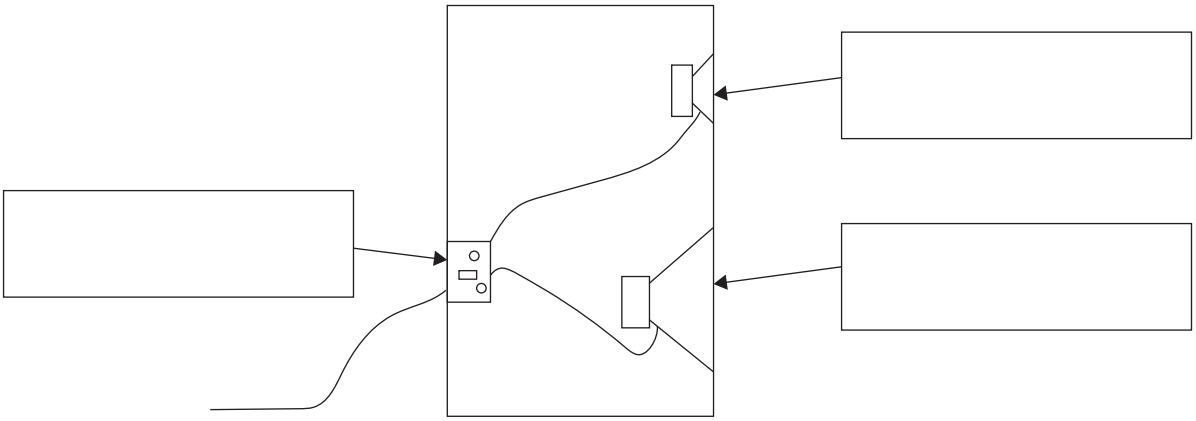
b. When an audio interface converts audio from analogue to digital, what does the sample rate determine? 1 mark

_____

Do not write in this area.

Question 5 (5 marks)

A cross-section of a passive two-way speaker enclosure is shown in the image below.



a. Label the three internal components in the boxes above, as indicated on the image. 3 marks

b. Explain what is meant by the term ‘two-way speaker’. 1 mark

c. Explain what is meant by the term ‘passive speaker’. 1 mark

Question 6 (1 mark)

Describe the impact of decreasing DAW buffer size on latency.

Do not write in this area.

Use the following information to answer Questions 7–11.

A student has written the following report detailing the tasks they completed to make a demo recording for a band.

Question 7 (2 marks)

Band line up:

two guitarists who sing together
a bass guitarist
an electronic keyboard player
a drummer

My audio interface only has four microphone inputs, but I have lots of tracks on my DAW. The band wanted to record one song and were not used to recording. They wanted to play together, like they were doing a gig. I needed to think carefully about how to record the various instruments so that each had their own tracks in the recording. The audio interface has two headphone outputs, so I could overdub two players at the same time. The problem was that if I did that, I wouldn't hear the recording because the band and the DAW were all in the same room. I decided to do the recording by watching the levels on the DAW and then listen back after each take.

a. What is the function of the audio interface? 1 mark

b. Why is it important for the student to be 'watching the levels on the DAW'? 1 mark

Do not write in this area.

Question 8 (3 marks)

> The band played the song together until they had a take that had the energy they wanted. While they were playing through, I tracked the drums using three microphones. I tracked the bass at the same time as the drums, using a direct input (DI) box. Then I overdubbed the keyboard player.

a. What is meant by a 'take'? 1 mark

b. Give two reasons why a DI was used for the bass? 2 marks

Reason 1

Reason 2

Question 9 (3 marks)

> Next, the electric guitar overdubs were recorded together but on separate tracks. I placed the amplifiers far apart and facing away from each other to reduce bleed. I recorded both guitar amps with cardioid pattern microphones set off-axis from the speakers.

a. What is meant by 'bleed'? 1 mark

b. What are 'cardioid pattern microphones'? 1 mark

c. What is meant by 'off-axis from the speakers'? 1 mark

Do not write in this area.

Question 10 (2 marks)

> Next, the two singers wanted to record at the same time. So I placed them on either side of a large diaphragm condenser microphone switched to figure-8 pattern.

a. What is **one** advantage of using a 'large diaphragm condenser' microphone to record vocals? 1 mark

b. Describe what is meant by 'figure-8 pattern'? 1 mark

Question 11 (4 marks)

> On playback, the bass sounded thin. In the DAW, I ran the bass track through a bass amp simulator plug-in to give it a fuller sound. I used a guitar amp simulator plug-in on the guitar tracks to add overdrive. I placed a reverb on an auxiliary channel, created a send on all the tracks and routed them to the reverb channel input.

a. What is a 'plug-in'? 1 mark

b. What is 'overdrive'? 1 mark

c. What is meant by a 'send'? 1 mark

d. What is 'reverb'? 1 mark

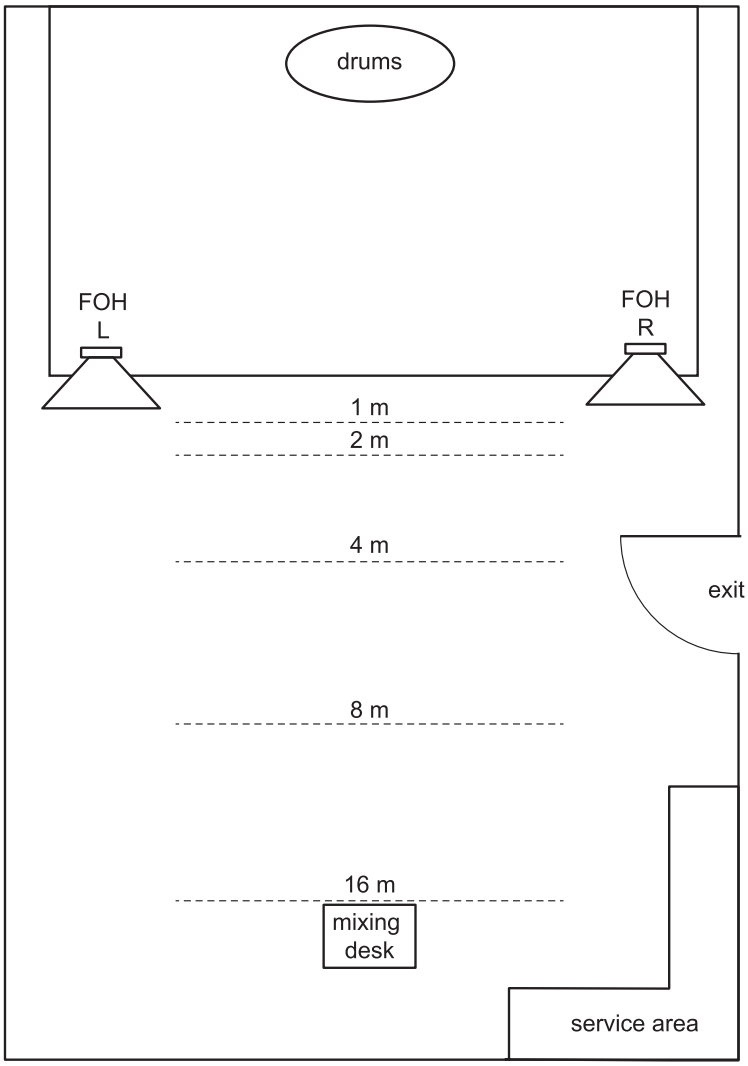
Do not write in this area.

Use the following information to answer Questions 12–15.

A three-piece band needs a technical rider for a tour. The band consists of a drummer/vocalist, a bass guitarist and a guitar/vocalist. The guitar/vocalist swaps to synthesiser for some songs.

Below is a table with a list of symbols, and a plan for a performance at an indoor venue. The bass player always sets up stage left of the drummer. The drum kit is placed in the centre of the stage. The guitar/vocalist needs to see the faces of the other two musicians.

Symbol	Description
G	guitar amplifier
B	bass amplifier
S	synthesiser
×	microphone stands × 2
↔	multicore
FB	foldback wedges × 3



Question 12 (9 marks)

Using the symbols provided, mark on the plan the best location for the following items.

a. The guitar amplifier, bass amplifier and synthesiser. 3 marks

b. The two vocal microphone stands. 2 marks

c. The shortest and safest multicore run between the mixing desk and the stage. 1 mark

d. Each band member needs a foldback wedge. Mark the three foldback wedges on the plan. They should be placed to maximise coverage for each performer and to minimise the risk of feedback. 3 marks

Do not write in this area.

Question 13 (16 marks)

Below is a table showing equipment available to use at the venue.

A. 1 × cardioid dynamic	**B.** 1 × omni-directional dynamic	**C.** 2 × active DI
D. 4 × cardioid dynamic	**E.** 2 × cardioid dynamic with claw-clip	**F.** 1 × large diaphragm cardioid dynamic
G. 2 × pencil condenser	**H.** 1 × cardioid dynamic	**I.** 2 × passive DI
J. 4 × straight stands	**K.** 4 × tall boom stands	**L.** 2 × short boom stands

Do not write in this area.

Fill in the blank fields in the input table below using the letters from the table of equipment to identify which device you would use for each source. Some fields have been completed for you.

Channel	Input	Microphone/ input device	Phantom power required Y/N	Microphone stand
1	kick drum		N	
2	snare drum			
3	rack tom	E	N	n/a
4	floor tom		N	n/a
5	over head	G	Y	
6	over head		Y	
7	bass guitar	I		n/a
8	electric guitar		N	n/a
9	synth stereo left		Y	n/a
10	synth stereo right	C		n/a
11	vocal 1 (lead)		N	
12	vocal 2 (lead)		N	K

Sources: A <www.shure.com>; B <www.shure.com>; C <www.behringer.com>; D <www.shure.com>; E <www.sennheiser.com>; F <www.shure.com>; G <www.neumann.com>; H <www.sennheiser.com>; I <www.echotone.com.au>; J <www.tama.com>; K <www.tama.com>; L <www.tama.com>

Do not write in this area.

Question 14 (2 marks)

The front of house PA volume is measured as 124 decibels of sound pressure level (dB SPL) at 1 metre.

a. What will the measured SPL be at the mixing desk? 1 mark

_____

b. During the line check, it is found that one of the foldback wedges is not working.

Which performers most need the two remaining foldback wedges? 1 mark

_____

Question 15 (2 marks)

During the performance one of the vocalists asks for 'more foldback'. A loud squealing sound comes from the foldback wedge.

a. What additional piece of equipment can be inserted in the vocal channel send to get rid of this sound? 1 mark

_____

b. Explain why this problem did not occur at a previous outdoor performance with the same band and using the same PA equipment. 1 mark

_____

_____

_____

Question 16 (5 marks)

List five audio or stage production crew roles that are needed to put on a large outdoor music festival.

Role 1 _____

Role 2 _____

Role 3 _____

Role 4 _____

Role 5 _____

Do not write in this area.

Question 17 (4 marks)

List four different Work Health and Safety (WHS) concerns that should be considered when planning a daytime, alcohol-free, outdoor live music event.

Concern 1 _____

_____

Concern 2 _____

_____

Concern 3 _____

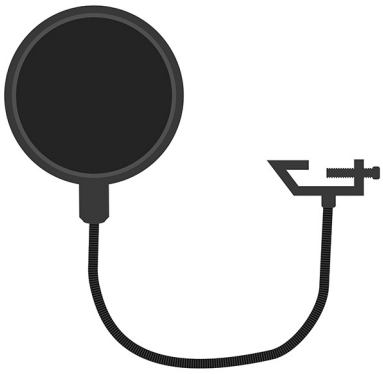
_____

Concern 4 _____

_____

Question 18 (3 marks)

Below is an image of a studio recording accessory.



Source: ASWK Studio/Shutterstock.com

a. How could this accessory be best used to improve a studio recording? 1 mark

_____

_____

b. Why is this accessory rarely used in a live performance? 1 mark

_____

_____

c. What is the common name for this accessory? 1 mark

_____

Do not write in this area.

Question 19 (9 marks)

Below is a photograph of a portion of a digital mixing desk.

a. Which section is designed to reduce wind rumble coming from a microphone? 1 mark

_____

b. Which section is used to set the level of an input source? 1 mark

_____

c. Which controller is used to set the 'Q' value for low-frequency sound sources/outputs? 1 mark

_____

d. Give two differences between a parametric equaliser and a graphic equaliser. 2 marks

Difference 1 _____

Difference 2 _____

Do not write in this area.

e. This digital mixing desk has a 4-band parametric EQ section and a 30-band graphic EQ (GEQ). In what situation would it be better to use the graphic EQ over the parametric EQ? 1 mark

f. What is the function of the 'Thres' controller in the 'Gate' section? 1 mark

g. What does the 'GR' LED in the 'Comp' section indicate? 1 mark

h. Which section is used to place a signal on one side of a stereo mix? 1 mark

End of Question and Answer Book

Do not write in this area.

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