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

VET Music: Sound Production

Question and Answer Book

VCE Examination – Wednesday 5 November 2025

- Reading time is **15 minutes**: 11.45 am to 12 noon
- Writing time is **1 hour 30 minutes**: 12 noon to 1.30 pm

Materials supplied

- Question and Answer Book of 28 pages

Instructions

- You may write at any time during the playing of the audio 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

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 (1 mark)

The following excerpt is of a bass guitar recorded through a direct input (DI) box, like the one shown below. The excerpt is in one part. There is an issue with the audio.

Source: Behringer <www.behringer.com>

Which setting on the DI box should be engaged to remove the issue?

Question 2 (1 mark)

The following excerpt is of a voice-over recording made in a noisy location. The excerpt is in one part.

What equaliser (EQ) setting could be applied to minimise the noise issue?

Question 3 (5 marks)

The following audio excerpts are multi-track recordings of a band, consisting of drums, double bass, piano and a tenor saxophone. Each excerpt is in two parts.

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

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

c. What type of effect has been added to the piano track in the second part of Excerpt 3c? 1 mark

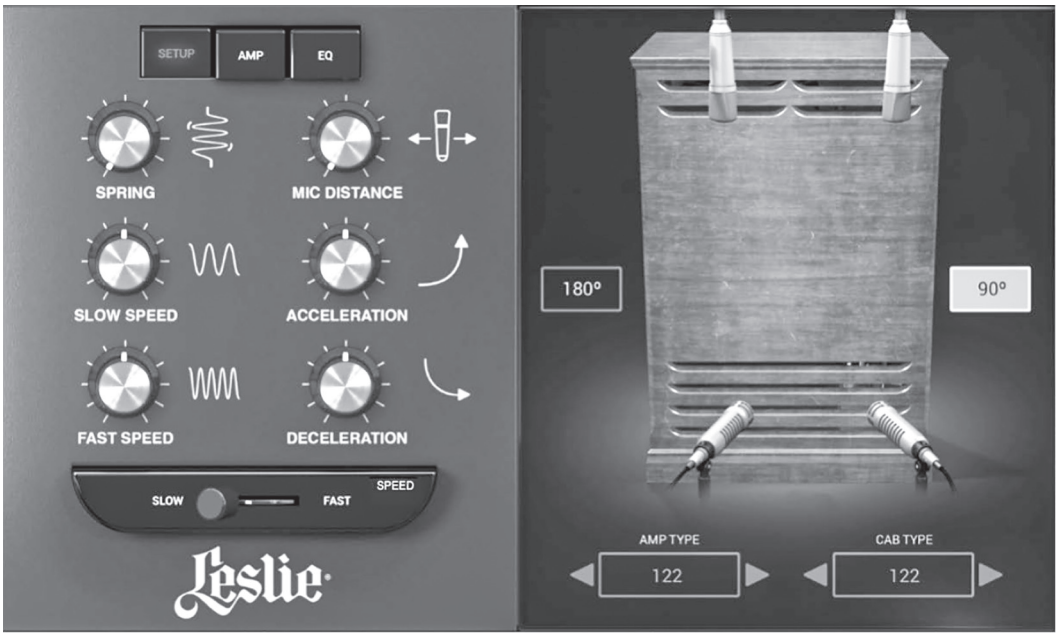
d. What type of effect has been added to the saxophone track in the second part of Excerpt 3d? 1 mark

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

Question 4 (7 marks)

The following excerpts are of an electric guitar that has had various effects applied.

a. Excerpt 4a is in two parts. The same effect has been applied to both parts. The image below shows the effect that has been applied. In the second part, one effect parameter has been modified.



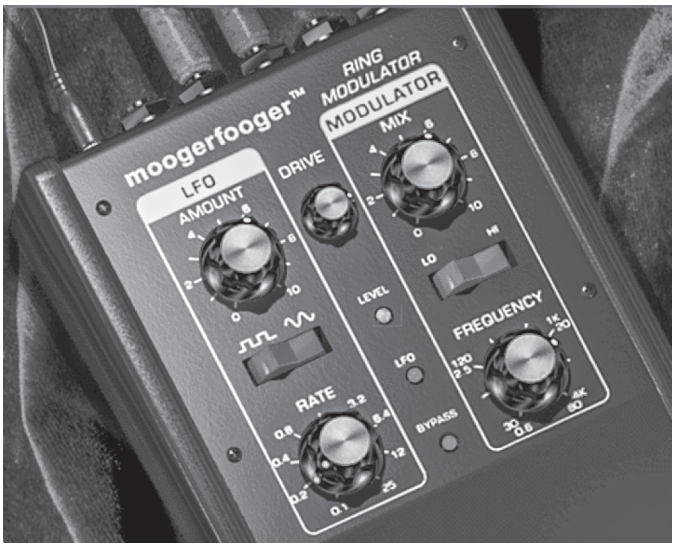
Sources: IK Multimedia <www.ikmultimedia.com>

Which effect parameter has been changed? 1 mark

_____

Do not write in this area.

b. Excerpt 4b is in three parts. The same effect has been applied to the second and third parts only. The image below shows the effect that has been applied. In the third part, one effect parameter has been altered.



Sources: Moog <www.software.moogmusic.com>

i. Which effect parameter has been altered in the third part? 1 mark

ii. In what way has the effect parameter been altered in the third part? 1 mark

Question 4 continues on the next page.

c. Excerpt 4c is in three parts. The effect shown in the image below has been applied to all three parts. A single parameter has been modified in the second part and modified further in the third part.

Source: Pro Tools <www.avid.com>

i. Which effect parameter has been modified in the second and third parts? 1 mark

ii. In what way has the effect parameter been modified further in the third part? 1 mark

Do not write in this area.

d. Excerpt 4d is in three parts. The effect shown in the image below has been applied to all three parts. A single parameter has been modified in the second part and modified further in the third part.

Sources: Waves Audio Ltd <www.waves.com>

i. Which effect parameter has been modified in the second and third parts? 1 mark

_____

ii. In what way has the effect parameter been modified further in the third part? 1 mark

_____

Question 5 (2 marks)

The following excerpt is played in two parts. The first part is a track that has been mixed but not mastered. The second part is of the same track after it has been mastered.

Which two types of audio processing have been used to achieve this result?

Type 1 _____

Type 2 _____

Do not write in this area.

Question 6 (3 marks)

The following excerpt is in one part. It is an audio recording of a keyboard player jamming to a loop. The excerpt contains an issue.

a. What is the problem with the keyboard player's performance? 1 mark

b. How could the keyboard track be fixed without re-recording it? 1 mark

c. The keyboard player is unhappy with the performance and wants to re-record the part.

What could an engineer do to help the keyboard player record a better take? 1 mark

Question 7 (3 marks)

The following excerpts are of a synth-based track that will be played through a PA system in a club.

a. Excerpt 7a is in two parts.

Which audio processing technique has been applied to the second part of Excerpt 7a? 1 mark

b. Excerpt 7b is of the synth-based track being played through the PA system in the club. The excerpt is in one part. The PA system is a two-way system. One speaker component in the system is not functioning.

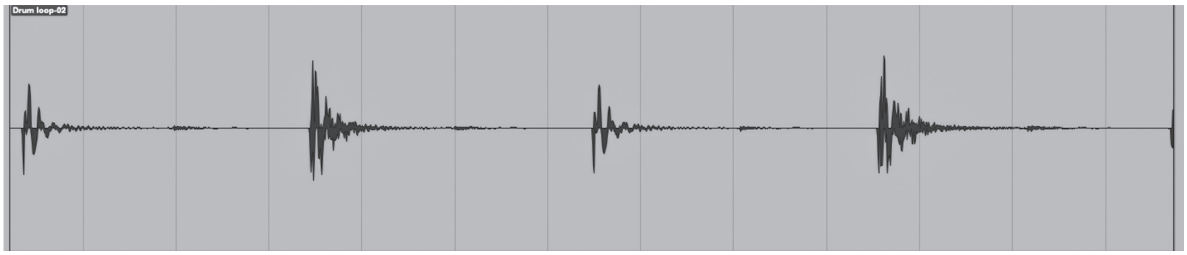
i. What is the speaker component that is not functioning in Excerpt 7b? 1 mark

ii. The PA system crossover has five available frequencies: 200 Hz, 1000 Hz, 2.5 kHz, 8 kHz and 16 kHz.

Which crossover frequency has been used in Excerpt 7b? 1 mark

Question 8 (3 marks)

The following excerpt is of a drum loop made in a digital audio workstation (DAW). The excerpt is made up of a bar of drums, repeated four times in total. There is an issue with the loop. The image below shows the audio waveform for one complete loop.



a. What is the issue with the loop? 1 mark

b. Suggest two editing actions that would correct the issue. 2 marks

Editing action 1 _____

Editing action 2 _____

End of Section A

Section B

Instructions

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

Question 1 (1 mark)

How many megabytes (MB) are there in a gigabyte (GB)?

_____

Question 2 (1 mark)

What audio characteristic explains why the same note played on a trumpet or on a clarinet sounds different?

_____

Question 3 (1 mark)

What happens to the speed of sound as air temperature increases?

_____

Question 4 (1 mark)

How many milliseconds are there in a second?

_____

Question 5 (2 marks)

The acronym AD/DA refers to a process performed by an audio interface.

a. What does the A stand for? 1 mark

_____

b. What does the D stand for? 1 mark

_____

Question 6 (1 mark)

What is the maximum dynamic range when recording at 16 bits?

_____

Question 7 (2 marks)

Identify two issues that may occur if control room monitoring levels are too high when carrying out a mix.

Issue 1 _____

Issue 2 _____

Question 8 (4 marks)

An engineer is making a recording of a piano using a matched pair of microphones. The sound of both microphones together is thin and hollow. When the engineer listens to each microphone on its own, the sound is full and natural. All equipment is functioning correctly.

a. What is the name given to this audio issue? 1 mark

_____

b. Provide two solutions to fix this audio issue so that both microphones can be used. 2 marks

Solution 1 _____

Solution 2 _____

c. Why is it good practice to occasionally monitor in mono when listening to a pair of microphones from one sound source? 1 mark

_____

_____

Question 9 (4 marks)

List two advantages and two disadvantages of using a body-worn wireless lapel microphone.

Advantage 1 _____

Advantage 2 _____

Disadvantage 1 _____

Disadvantage 2 _____

Question 10 (1 mark)

A band is performing at a live concert event. The band has employed a guitar tech as part of the stage crew.

Name **one** task typically performed by a guitar tech.

_____

_____

Question 11 (1 mark)

A PA system tech is setting up for an outdoor live event. The multicore needs to be run from the stage to the mix position in the crowd area. There is no way to avoid running the multicore through the centre of the crowd.

Suggest **one** way to prevent the multicore from becoming a tripping hazard.

_____

Question 12 (5 marks)

A sound engineer is mixing a live performance at a small venue. Due to space constraints, the analogue mixing desk is located at the side of the stage.

a. Identify two issues that may arise from this. 2 marks

Issue 1 _____

Issue 2 _____

b. The venue has decided to replace its analogue mixing desk with a digital mixing desk that can connect to wi-fi. The main mix position will need to stay at the side of the stage.

Suggest an additional item of equipment that can be purchased to get the best out of the small space. Give two reasons for your suggestion. 3 marks

Item of equipment _____

Reason 1 _____

Reason 2 _____

Question 13 (2 marks)

An engineer is mixing a multi-track recording in a DAW. The same reverb plug-in, with the same setting, has been duplicated on all tracks. This causes playback to stop and the computer to display an error message.

Suggest two solutions to fix this problem without having to change the sound of the mix.

Solution 1 _____

_____

Solution 2 _____

_____

Question 14 (4 marks)

A band will perform live at an indoor venue. The band's sound engineer will be responsible for the following tasks.

Task	Task description
A	operating the front-of-house (FOH) mix during the performance
B	choosing which microphones or DI boxes to use from those available at the venue
C	performing a line check
D	performing a sound check
E	deciding the PA system input list
F	operating the monitors during the performance
G	tuning the PA system

Which four tasks listed in the table above can be carried out without the band present?

1 _____

2 _____

3 _____

4 _____

Question 15 (4 marks)

An engineer is setting up multiple microphones for a live performance.

a. Provide **one** reason why the input channels should be muted first. 1 mark

b. Why is it good practice to run the cables flat on the stage? 1 mark

c. Provide two reasons for leaving any excess cable coiled at the base of the microphone stands rather than at the stage box. 2 marks

Reason 1

Reason 2

Question 16 (2 marks)

A sound engineer is recording a group of musicians in a studio using a DAW. The musicians are separated by acoustic baffles. They are recording their parts at the same time and playing to a recorded click track. The sound engineer has set up headphones for them. The headphone mixes for each musician can either be made from the signal coming directly from the DAW inputs or from the DAW outputs.

a. Identify **one** advantage of providing a headphone mix from the DAW input signals. 1 mark

b. Identify **one** advantage of providing a headphone mix from the DAW output signals. 1 mark

Question 17 (1 mark)

A recording of a trumpet has been made in an acoustically dead studio. The intention is to make the trumpet sound like it was recorded in a large cathedral. Below are four images showing reverb plug-in settings.

Image A

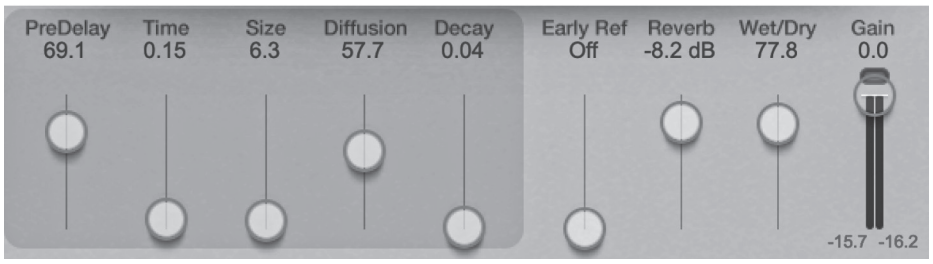


Image B

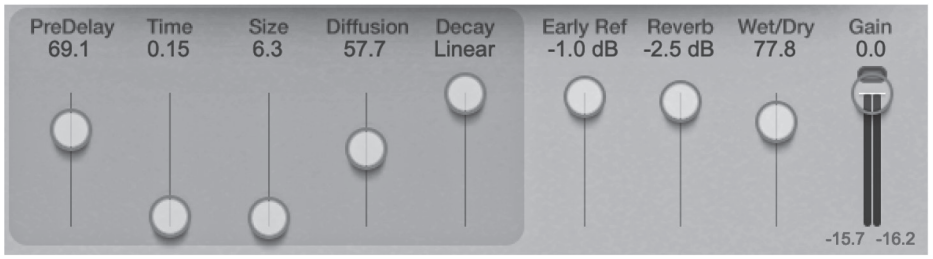


Image C

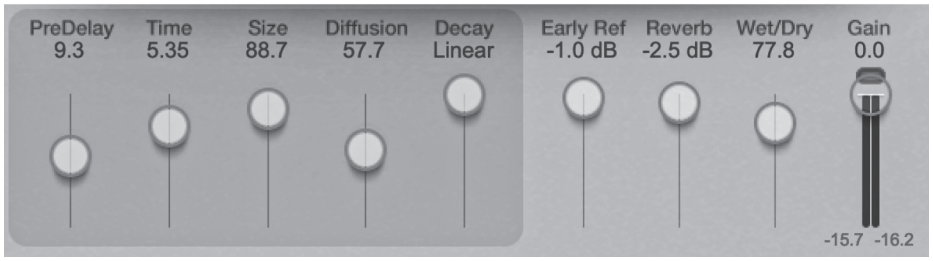
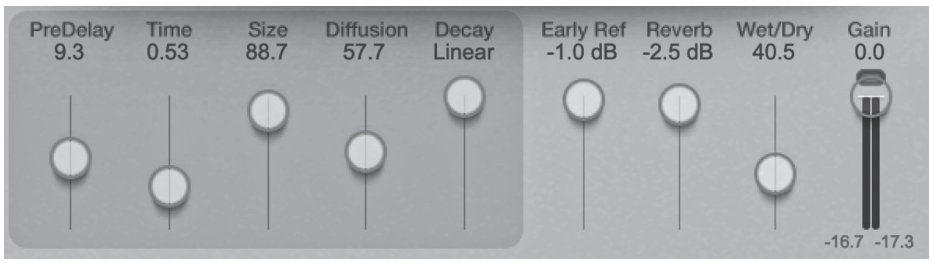


Image D



Sources: Waves Audio Ltd <www.waves.com>

Which image – A, B, C or D – will create the required effect?

Question 18 (1 mark)

How is a link/thru connection on a DI box commonly used during a live sound performance?

Question 19 (3 marks)

Two 4 ohm (Ω) speakers are connected in parallel to an amplifier rated at 4 Ω.

a. What will be the likely result of connecting the two 4 Ω speakers in parallel? 1 mark

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b. What is the total impedance of the two 4 Ω speakers connected in parallel? 1 mark

---

c. What would the total impedance be if the two 4 Ω speakers were connected in series? 1 mark

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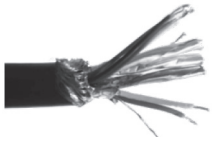
Question 20 (8 marks)

Below is a selection of commonly used connectors and examples of the internal wiring of cables.

A 

B 

C 

D 

E 

F 

G 

H 

I 

Source: (H) Talaj/Shutterstock.com

a. Using the labels given, fill in the blanks in the table below. 6 marks

Connector label	Connector name	Internal wiring label
	TS/jack/phono	
	XLR/Cannon	
	HDMI	C
G	Speakon/NL2/NL4	

b. Give two advantages of using balanced cables instead of unbalanced cables. 2 marks

Advantage 1 _____

_____

Advantage 2 _____

_____

Do not write in this area.

Question 21 (3 marks)

An engineer is calculating the number of FOH speakers required for a live outdoor performance. A sound pressure level (SPL) of 90 dB SPL at 10 m from the FOH speakers is required. The engineer calculates that four active FOH speakers will produce 87 dB SPL at 10 m.

a. What is the minimum number of additional active speakers needed to produce 90 dB SPL at 10 m? 1 mark

b. If 90 dB SPL is achieved at 10 m, what would the SPL be at 20 m from the FOH speakers? 1 mark

c. What is half the perceived volume of 90 dB SPL? 1 mark

Question 22 (4 marks)

List four uses for a demo recording.

1 _____

2 _____

3 _____

4 _____

Question 23 (3 marks)

During mixing there are inconsistent volume levels in a vocal track.

List three tools or techniques that could be used to fix this issue.

1 _____

2 _____

3 _____

Question 24 (1 mark)

Which one of the file types in the drop-down menu shown below would provide the highest quality compressed audio-only file? Tick (✓) the correct answer.

	Video – VP80 + Vorbis (Webm)
	Video – H.264 + MP3 (TS)
	Video – Dirac + MP3 (TS)
	Video – Theora + Vorbis (OGG)
	Video – Theora + Flac (OGG)
	Video – MPEG-2 + MPGA (TS)
	Video – WMV + WMA (ASF)
	Video – DIV3 + MP3 (ASF)
	Audio – Vorbis (OGG)
	Audio – MP3
	Audio – MP3 (MP4)
	Audio – FLAC
	Audio – CD

Source: VideoLAN project <www.videolan.org>

Question 25 (15 marks)

A student is going to make a demo recording for a trio. The student will use a DAW with an audio interface that has four microphone inputs. The trio consists of a vocalist who also plays acoustic guitar, a double-bass player and a DJ. The DJ will trigger drum loops and other sampled sounds from a laptop. The acoustic guitar is fitted with a pick-up. The performers want to be able to apply plug-ins to each individual track in mixdown. They will perform all their parts together with no overdubs. The recording space is highly reverberant. The table below shows the type and quantity of input devices available for the recording.

Label	Image	Input device	Quantity available
A		omnidirectional condenser microphone	1
B		large diaphragm cardioid dynamic microphone	1
C		cardioid dynamic vocal microphone with built-in pop shield	2
D		stereo pair of small diaphragm cardioid condenser microphones (this counts as two microphones)	1 pair (i.e. 2 microphones)
E		omnidirectional dynamic microphone	1
F		active DI box	2

Sources: (A) www.akg.com, (B,C,E) www.shure.com, (D) www.neumann.com, (F) www.radialeng.com

Do not write in this area.

a. Use the labels A to F to list three different input devices from the table that require phantom power to operate. 3 marks

Input device 1 _____ Input device 2 _____ Input device 3 _____

b. Complete the table below by selecting the best input device label for each sound source listed. Give a reason for each of your selections. An example has been provided. 6 marks

DAW input	Sound source	Input device label	Reason for choice
1	double bass	B	The large diaphragm will capture low frequencies well.
2	acoustic guitar		
3	vocals		
4	laptop		

Question 25 continues on the next page.

c. After completing the recording, the student has the following plug-ins available for use in mixdown.

flanger	bit crusher	compressor
de-esser	super fuzz distortion	gate
reverb	tape echo	auto wah

Identify the most suitable plug-in from the list above for each of the following scenarios. 3 marks

- Some notes in the double-bass track are noticeably louder than others.

- There is excessive sibilance in the vocal track.

- The acoustic guitar needs to sound like it is in a large hall.

d. Upon playback, two issues are identified that the trio would like improved without having to re-record.

Suggest a mixing solution for each of these issues. 2 marks

- acoustic guitar spill in the vocal track only when the vocalist is not singing

- vocal spill in the double-bass track while the double bass is being played

e. The recording file format was .wav at 24-bit resolution. The recorded audio files take up 30 GB of hard drive space.

If the recording file format had been .wav at 16-bit resolution, what would the total file size have been? 1 mark

End of Question and Answer Book

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