



Victorian Certificate of Education 2010

SUPERVISOR TO ATTACH PROCESSING LABEL HERE

STUDENT NUMBER

Figures

Words

Letter

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VCE VET MUSIC INDUSTRY (Technical production)

Aural and written examination

Thursday 11 November 2010

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

Section	Number of questions	Number of questions to be answered	Number of marks
A	10	10	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 white out liquid/tape.
- No calculator is allowed in this examination.

Materials supplied

- Question and answer book of 17 pages.
- Answer **all** questions in the spaces provided.
- An audio compact disc will run continuously throughout Section A of the examination. The audio compact disc will run for 21 minutes.

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.
- 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 CD plays throughout Section A. In **Questions 1–10**, audio excerpts are played twice. The announcer explains how the audio excerpt(s) for each question will be played.

Question 1

- a. The following guitar excerpt is in two parts.
Identify the type of signal processing used on the second part.

1 mark

- b. The following guitar excerpt is in two parts.
Identify the type of signal processing used on the second part.

1 mark

Question 2

The following excerpt from a radio program is in two parts.

- a. Tick (✓) the correct box.
What is the technique used on the second part commonly called?

- A. expanding
- B. ducking
- C. cross fading
- D. equalising

1 mark

- b. In a typical Digital Audio Workstation (DAW), what mixing tool was most likely used to make the second part of the excerpt?

1 mark

Question 3

The following music excerpt is in two parts.
Identify the process used on the second part.

1 mark

Question 4

- a. The following guitar excerpt is in two parts.
Identify the type of digital processing used on the second part.

1 mark

- b. The following vocal excerpt is in two parts.
Identify the type of signal processing used on the second part.

1 mark

Question 5

The following music excerpt contains a problem with the lead vocal.

- a. Identify the problem with the lead vocal.

1 mark

- b. Suggest two types of signal processor that could be used to eliminate the problem.

i. _____

ii. _____

1 + 1 = 2 marks

Question 6

The following drum excerpt is in two parts. Each part uses the same type of processing on the drums.

- a. What processing has been used on each part?

1 mark

- b. Which parameter has been altered between the first and second parts?

1 mark

- c. Describe how the parameter has been altered.

1 mark

Question 7

- a. The following music excerpt contains an audible problem.
Identify the type of problem that has occurred.

1 mark

- b. The following music loop contains an audible problem.
Identify the type of problem that has occurred.

1 mark

Question 8

The following speech excerpt contains unwanted noise.

- a. What is this type of noise commonly called?

1 mark

- b. Suggest two different ways you would prevent the noise from occurring.

i. _____

ii. _____

1 + 1 = 2 marks

Question 9

- a. The following music excerpt is in two parts.
Describe how the mixdown of the second part has changed.

1 mark

- b. The following music excerpt is in two parts.
Describe how the mixdown of the second part has changed.

1 mark

- c. The following music excerpt is in two parts.
Describe how the mixdown of the vocals in the second part has changed.

1 mark

- d. The following music excerpt is in two parts.
Describe how the mixdown of the vocal in the second part has changed.

1 mark

Question 10

The following excerpt is a recording of a sound engineer talking into a microphone while testing a PA system. The talking creates an unwanted sound in the PA speakers.

- a. What is the unwanted sound commonly called?

1 mark

- b. Suggest two different ways the sound engineer could eliminate the unwanted sound from the PA speakers.

i. _____

ii. _____

1 + 1 = 2 marks

Total 25 marks

SECTION B

Question 1

Below are three different types of wave shapes. For each diagram below, tick the correct name.

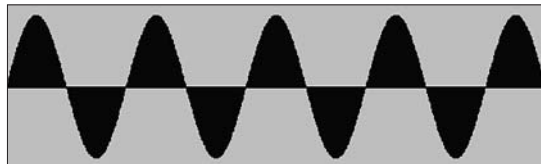
a.



- sawtooth
- triangle
- sine
- noise

1 mark

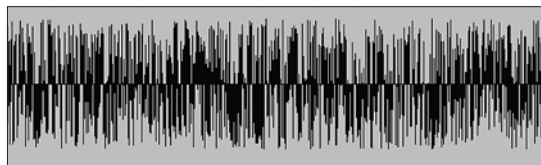
b.



- sawtooth
- triangle
- sine
- noise

1 mark

c.



- sawtooth
- triangle
- sine
- noise

1 mark

Question 2

- a. 0 decibels (dB) SPL is commonly known as the threshold of ‘_____’.
1 mark
- b. 120–130 decibels (dB) SPL is commonly known as the threshold of ‘_____’.
1 mark
- c. What is the commonly accepted maximum frequency range for normal hearing in humans?

1 mark

Question 3

What is the musical interval between the frequencies 300 Hz and 600 Hz?

1 mark

Question 4

- a. What is the main difference between a **Passive** Direct Injection (DI) box and an **Active** DI box?

1 mark
- b. What is the function of Pin 1 on a typical XLR connector?

1 mark
- c. Explain why it is not advisable to use instrument cables to connect power amplifiers and speakers together.

1 mark

Question 5

a. If one mono track of digital audio with a resolution of 44.1 kHz/16-bit uses approximately 5 megabytes (Mb) of storage per minute of audio, how many Mb of storage would be used for the following?

i. 4 tracks over 5 minutes _____ Mb

ii. 8 tracks over 4 minutes _____ Mb

2 + 2 = 4 marks

b. If one stereo track of digital audio with a resolution of 44.1 kHz/24-bit uses approximately 15 megabytes (Mb) of storage per minute of audio, how many Mb of storage would be required for 3 separate 10-minute radio programs at this resolution?

_____ Mb

2 marks

c. Tick (✓) the correct box.

Of the digital storage media below, which has the largest storage capacity?

A. CD-recordable

B. DVD-recordable

C. 2 Gb USB Flash Drive

1 mark

Question 6

a. Tick (✓) the correct box.

Of the three microphones listed below, which will capture **low** frequencies more accurately?

A. small diaphragm condenser

B. large diaphragm condenser

C. 'pencil condenser'

1 mark

b. Tick (✓) the correct box.

Of the three microphones listed below, which will capture sound in all directions equally?

A. unidirectional

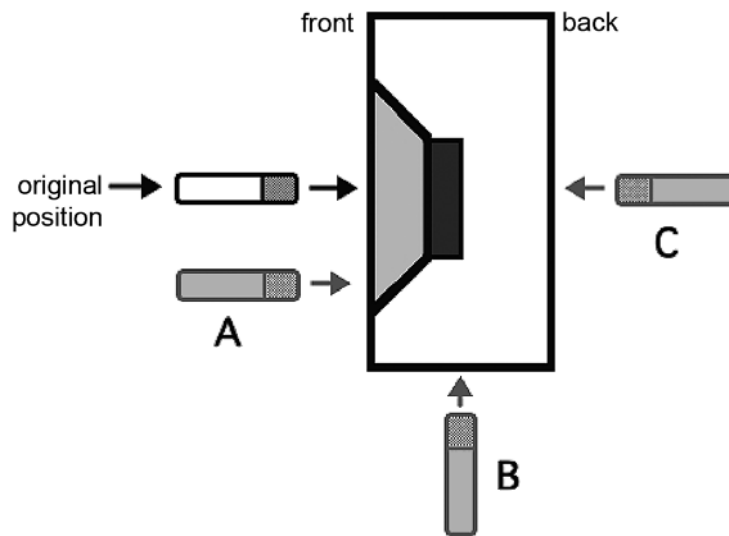
B. omnidirectional

C. bidirectional

1 mark

Question 7

The diagram below shows a cardioid microphone placed in front of a speaker. In its original position, the microphone is capturing too many low frequencies and the sound is 'muddy'. Of the three other microphone positions shown, circle the one (A, B or C) that is most likely to reduce the capture of low frequencies and produce a 'brighter' sound.



1 mark

Question 8

Two types of broadband noise are commonly used as calibration tools in audio production and sound reinforcement. They are named after colours.

What are they known as?

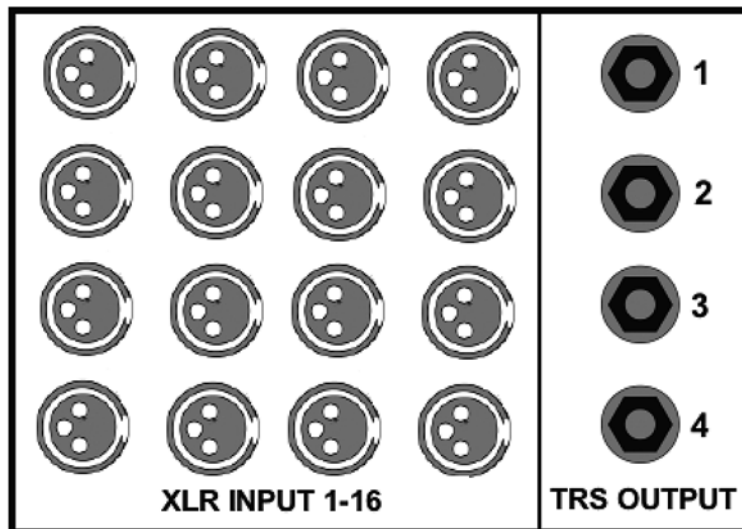
i. _____

ii. _____

1 + 1 = 2 marks

Question 9

Below is a diagram that represents a typical stage box with 16 XLR microphone-level inputs and 4 line-level TRS outputs.



- a. In a typical live performance setup, what are the 4 outputs most commonly used for?

1 mark

- b. In order for a typical electric piano or synthesizer with 6.5 mm unbalanced line outputs to connect to any of the XLR microphone inputs, an extra device is commonly used. What is the name of this extra device?

1 mark

- c. The outputs are labelled as 'TRS'.
What does TRS stand for?

T _____ R _____ S _____

3 marks

Question 10

The picture below shows a typical 6.5 mm TRS connector.



Provide two different uses for TRS connectors in audio production.

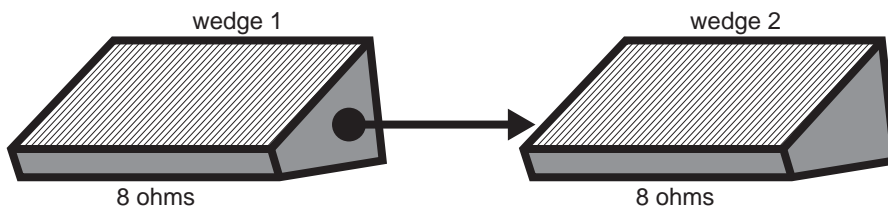
i. _____

ii. _____

1 + 1 = 2 marks

Question 11

Below is a diagram showing 2 foldback wedges connected together. Each foldback wedge has an impedance of 8 ohms.



a. If the wedges were connected in parallel, what would the overall impedance be?

1 mark

b. If the wedges were connected in series, what would the overall impedance be?

1 mark

c. If the wedges both had impedances of 4 ohms and were connected in series, what would the overall impedance be?

1 mark

Question 12

- a. For a standard 240 volt AC General Power Outlet (GPO), what is
- the maximum current (in amperes) permitted for safe operation
_____ A
 - the maximum power consumption (in watts) permitted for safe operation?
_____ W

1 + 1 = 2 marks

- b. Below is a diagram showing an Australian 240 volt AC power socket. Circle the pin which earths the plug when it is connected.



1 mark

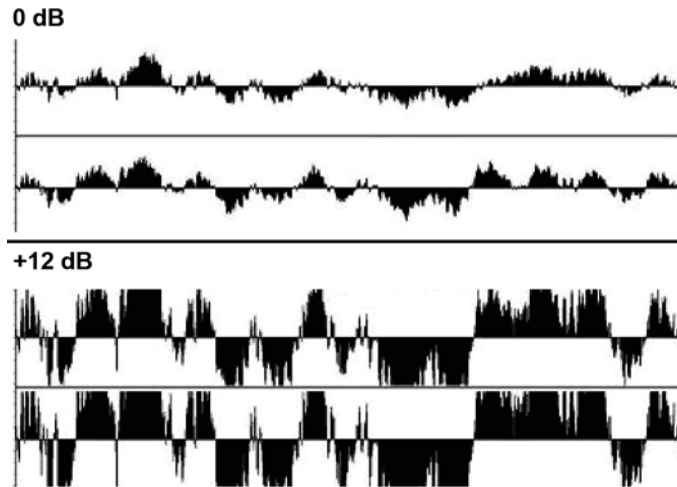
Question 13

Explain why it is advisable practice to assess the mixdown of a recording on more than one set of speakers; for example speakers of differing quality and size.

2 marks

Question 14

The diagram below shows a digital audio track that peaks at 0 decibels (dB) digital full scale, and then the same audio with +12 decibels (dB) gain added.



- a. What is likely to be the audible result of adding +12 dB gain to the audio above?

1 mark

- b. Why does the audio with +12 dB gain added appear to have flat horizontal lines at its highest peaks?

1 mark

Question 15

Identify the following four symbols used on mixing consoles and other audio equipment.

- i. \emptyset _____
- ii. Ω _____
- iii. ∞ _____
- iv. \surd _____

1 + 1 + 1 + 1 = 4 marks

Question 16

Tick (✓) the correct box.

Of the following file formats, which is most commonly used for recording, editing and mixing multitrack audio in professional DAWs?

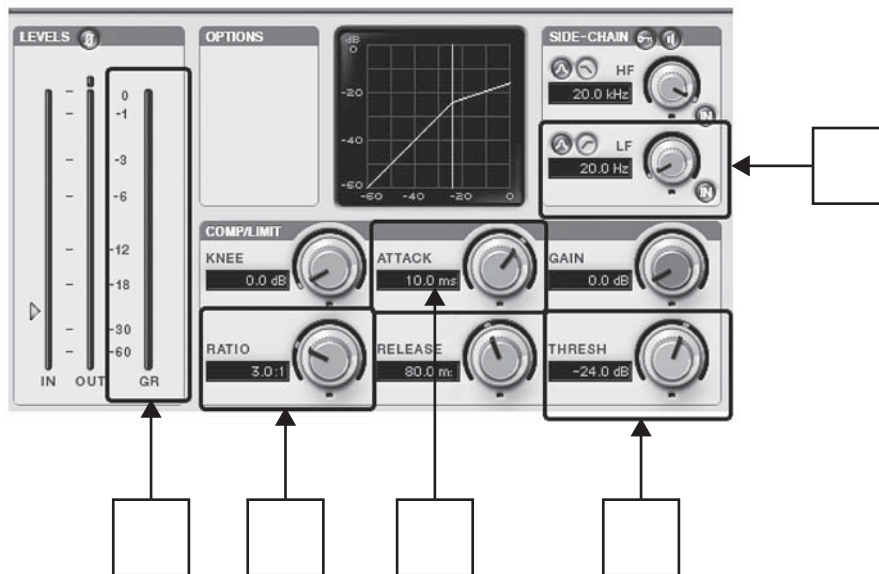
- A. CD-Audio
- B. mp3
- C. WAV
- D. Flash

1 mark

Question 17

Below is a diagram of a typical compressor plug-in. Different sections of the compressor are indicated. In the boxes pointing to each section, place each letter from A to E that best matches the statements below.

- A – sets the input level at which compression will begin to occur
- B – displays the amount of gain reduction in decibels
- C – enables the side-chain of high-frequency signal from another audio source
- D – controls the time it takes for the compressor to begin acting on a signal
- E – controls how much compression is applied to a signal



5 marks

Question 18

The school concert band is rehearsing in the local hall, which is also used as a gymnasium. The hall is long and rectangular, and has a wooden floor and brick walls. The band is rehearsing at one end of the hall.

The drummer is struggling to play in time because he can hear the drums reflecting off the back wall, a short but noticeable time after he plays.

- a. What is the reflected sound called?

1 mark

- b. Provide three possible acoustic solutions that would minimise the reflections.

i. _____

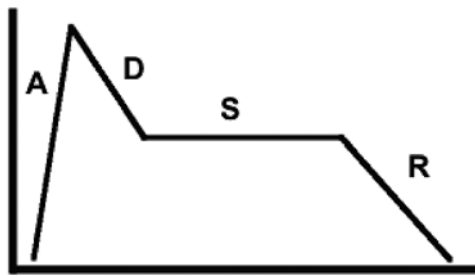
ii. _____

iii. _____

1 + 1 + 1 = 3 marks

Question 19

Identify each section of the ADSR envelope shown below.



A _____

D _____

S _____

R _____

4 marks

Question 20

Imagine you are mixing a song in a busy commercial recording studio. At the end of your mixdown session the studio owner asks you to normalise (or zero) the mixing console.

a. List three tasks you would perform when normalising (zeroing) the mixing console.

i. _____

ii. _____

iii. _____

1 + 1 + 1 = 3 marks

b. Give one reason why normalising (zeroing) a mixing console would be performed in a busy commercial recording studio.

_____ 1 mark

Question 21

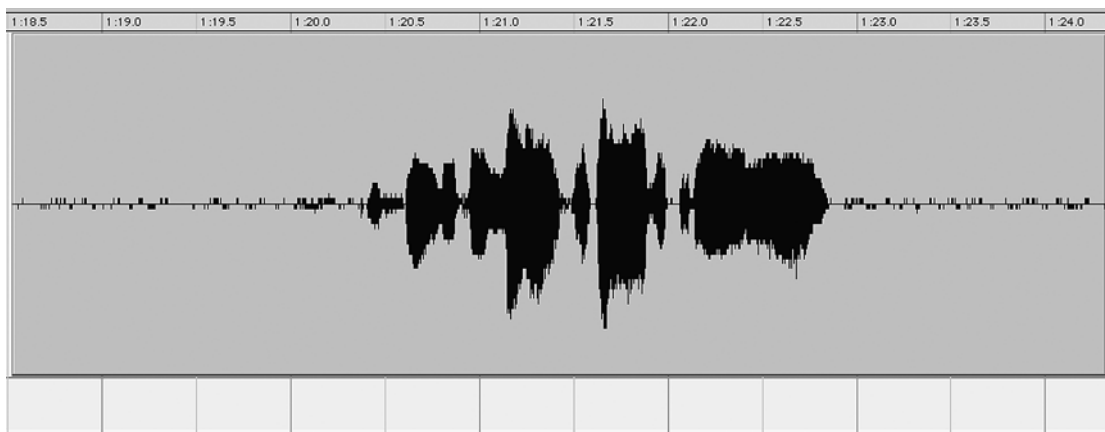
Imagine an outdoor music festival, where several bands are performing live on the same stage throughout the day. Every band has a different equipment setup that the festival organisers and crew must be able to accommodate.

What production document is required by the crew in order to correctly position each band’s equipment for its performance?

_____ 1 mark

Question 22

The following picture shows an audio region of some spoken words, with unwanted background noise before and after the words.



a. On the diagram above, neatly draw lines where you would edit the region in order to remove all the excess time and noise, and create a shorter ‘clean’ region.

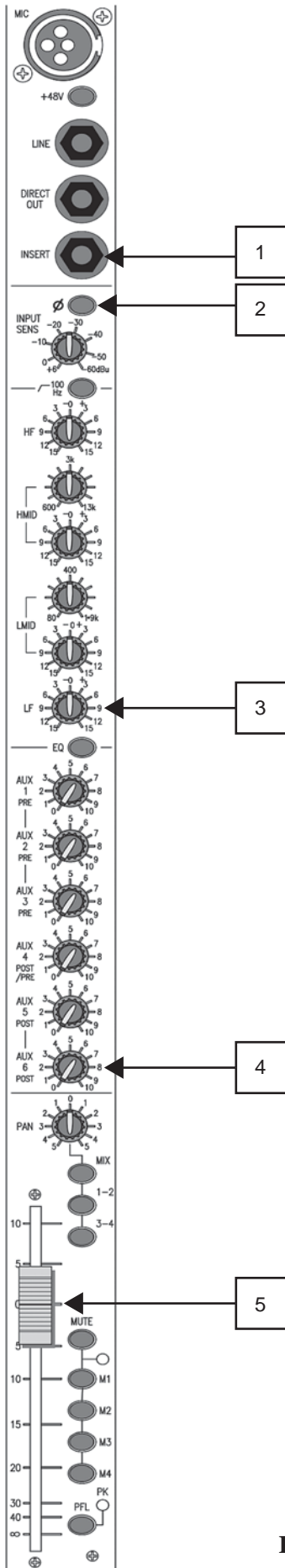
2 marks

b. What is a common name for the technique of removing the excess time and noise above?

_____ 1 mark

Question 23

Describe the function and give a possible application of each of the controls indicated on the mixer channel below.



i. Item 1 _____

What does this do? _____

ii. Item 2 _____

What does this do? _____

iii. Item 3 _____

What does this do? _____

iv. Item 4 _____

What does this do? _____

v. Item 5 _____

What does this do? _____

2 + 2 + 2 + 2 + 2 = 10 marks

Total 75 marks