2016 VCE VET Music Technical Production examination report

General comments

The 2016 VCE VET Music Industry Technical Production examination assessed students' knowledge of technical production and how this knowledge is implemented in a practical way.

While students could identify the waveforms in Section A, a significant number of students did not know the function of these waveforms. Students had a reasonable understanding of relational pitch and were able to identify various frequency tones from a reference tone.

In Section A, students could:

- ascertain various FX on listening
- could identify HP and LP filters
- could distinguish changes that occurred.

In Section A, students who scored well:

- had been exposed to various waveforms in a practical sense
- were able to identify and name the changed parameters of various effects
- had experience in more than the basic types of EQ filters
- were able to articulate reasons for changes and derive a reasonable situation why/how these changes may have occurred.

In Section B, responses indicated that students:

- have a wide variety of knowledge of various microphones types
- have many opportunities for setting up different types of PA systems and a good grasp of the equipment needed for connecting various components to the system
- lack strong knowledge of electrical power requirements
- have little idea of various types of cables and the purpose of shielding
- have completed relevant documentation for setting up PA systems and organising for recording
- have a good working knowledge of personal protective clothing
- have a poor knowledge of basic sound pressure formulas and their application.

In Section B, students who scored well:

- responded fully to the question and identified what was being asked of them
- were able to troubleshoot problems and articulate the solution
- understood the value of visiting a venue and determining how best to use the venue for the gig/sound production arrangements
- knew the properties of various microphone types (condenser/dynamic), characteristics (polar pattern/frequency response) and appropriate usage
- knew the relevant power calculations and measurement units
- had a working knowledge of appropriate cable usage
- knew the properties of sound (in relation to speed, heat, sound envelope, absorption)

- knew the reason for active versus passive DIs
- had very good understanding of appropriate documentation, especially in the audio recording processes
- knew relevant formulas for sound pressure and their practical application
- knew the difference between graphic and parametric EQ
- recognised the need for specific licensing to undertake certain jobs at a live event.

Specific information

This report provides sample answers or an indication of what answers may have included. Unless otherwise stated, these are not intended to be exemplary or complete responses.

The statistics in this report may be subject to rounding resulting in a total more or less than 100 per cent.

Section A

Questions 1a. and 1b.

Marks	0	1	2	3	4	Average
%	15	25	27	20	14	2

Question 1a.

Waveform: Pink noise

How it may be used: To test the frequency balance of a sound system and its components

Question 1b.

Waveform: Sine

How it may be used: To level align audio components and as a reference

Questions 2a.–2c.

Marks	0	1	2	3	Average
%	9	15	36	40	2.1

Question 2a.

500 Hz

Question 2b.

4 kHz

Question 2c.

250 Hz

Question 3a.

Marks	0	1	Average
%	18	82	0.8

Reverb

Question 3b.

Marks	0	1	Average
%	54	46	0.5

Reverb time, room size

Question 3c.

Marks	0	1	Average
%	50	50	0.5

The reverb time is longer, wetter, increased.

Questions 4a.–4c.

Marks	0	1	2	3	4	5	6	Average
%	11	6	21	5	37	11	9	3.2

Question 4a.

Filter: low-pass filter, high-cut filter

Description of change: removes top-end/high frequencies under a set frequency level, resulting in ‘boomy’ sound

Question 4b.

Filter: notch, band pass, parametric

Description of change: reduces/removes frequencies in the mid-range, resulting in a ‘boxy’ sound (could also be ‘tinny’ sound)

Question 4c.

Filter: high-pass filter, low-cut filter

Description of change: removes bottom-end/low frequencies under a set frequency level, resulting in ‘tinny’ sound

Question 5a.

Marks	0	1	Average
%	12	88	0.9

Delay

Question 5b.

Marks	0	1	2	Average
%	56	21	23	**0.7**

Parameter: feedback
Explanation of change: increased number of repetitions

Students could have focused on the increase in repetitions or the decrease in time between each repetition.

Question 6a.

Marks	0	1	Average
%	49	51	**0.5**

Reverb added

Question 6b.

Marks	0	1	Average
%	58	42	**0.4**

Trombone/horns/brass removed

Question 6c.

Marks	0	1	2	Average
%	58	12	30	**0.7**

Aspect: Saxophone/brass removed
Why: Any one of the following: sound engineer choice (i.e. create play-along track for students, instrument was out of tune, or other relevant explanation) or a technical reason (i.e. track muted, file corrupted, or other relevant explanation)

Question 6d.

Marks	0	1	2	Average
%	13	24	63	**1.5**

Aspect: drums removed (drums can still be heard in the reverb, so responses with ‘reduced’ were also be accepted)
How: Any one of the following: track may have been muted, track was not included in the bounce down, track was deleted (or other relevant explanation)

Section B

Questions 1a. and 1b.
Question 1a.

Marks	0	1	2	3	4	5	6	7	Average
%	1	1	5	7	15	19	25	28	**5.3**

Question 1b.

Marks	0	1	2	3	4	5	6	7	Average
%	1	0	1	3	10	14	36	35	**5.8**

Channel	Instrument/vocal	Microphone/DI box	Stand
1	kick drum	large diaphragm dynamic microphone	short boom
2	snare (top)	dynamic instrument microphone	short boom or tall boom
3	drum kit (overhead)	small diaphragm condenser microphone	tall boom
4	bass	DI	no stand
5	guitar amplifier	dynamic instrument microphone	short boom
6	electric keyboard	DI	no stand
7	vocals	hand-held dynamic microphone	tall boom

Question 2a.

Marks	0	1	2	3	Average
%	2	4	20	74	**2.7**

Any three of

- DI power – battery/phantom
- guitar lead
- microphone cable
- battery in guitar
- guitar pickup failure
- multicore unplugged/damaged
- console mute
- fader down.

Question 2b.

Marks	0	1	2	Average
%	6	30	63	**1.6**

Any two of:

- change to the foldback/monitor levels

- could cause feedback
- distortion
- clipping
- start playing out of time
- vocalist sings out of tune

Question 3a.

Marks	0	1	Average
%	45	55	0.6

Check that all required equipment has been supplied, no damage to equipment.

Question 3b.

Marks	0	1	Average
%	20	80	0.8

Powered speakers

Question 4

Marks	0	1	2	3	4	Average
%	7	5	11	22	55	3.2

Any four of:

- power location
- loading access/time
- cable runs
- OH&S
- room acoustics
- speaker locations
- stage size
- storage
- parking
- venue audio equipment
- positioning of equipment
- audience capacity.

If there is an audio system already installed, checking if the mixing equipment and installed components would be acceptable.

Question 5a.

Marks	0	1	Average
%	61	39	0.4

Dynamic microphone

Question 5b.

Marks	0	1	Average
%	96	4	0.1

Capacitor microphone

Question 5c.

Marks	0	1	Average
%	17	83	**0.9**

Loud audible pop/bang/click or feedback

Question 6a.

Marks	0	1	Average
%	48	52	**0.5**

Induced/audible/50 Hz hum, introduced/unwanted noise

Question 6b.

Marks	0	1	2	Average
%	23	46	31	**1.1**

Any two of:

- increased risk of electrocution
- power failure due to short circuit
- other electrical fault.

Question 6ci.

Marks	0	1	2	3	Average
%	19	38	12	31	**1.6**

Electrical measurement unit	Situation 1	Situation 2
power (watts)	480	2400
voltage electric potential difference, pressure, tension	240	240
current (amps)	2	10

Question 6cii.

Marks	0	1	Average
%	24	76	**0.8**

Incorrect ratio could cause personal injury and/or damage equipment (or other relevant response)

Question 7a.

Marks	0	1	Average
%	52	48	0.5

One shield

Question 7bi.

Marks	0	1	Average
%	59	41	0.4

Two cores

Question 7bii.

Marks	0	1	Average
%	56	44	0.5

1

Question 7c.

Marks	0	1	Average
%	90	10	0.1

Remove hum, isolate phantom power, break earth loop, stop making noise

Question 8a.

Marks	0	1	Average
%	40	60	0.6

The speed of sound speeds up

Question 8b.

Marks	0	1	2	Average
%	72	12	16	0.5

What: high/high-mid frequencies, top end, treble
Why: high frequencies are more easily transferred to heat when they enter porous materials such as clothing or low-frequency sound waves have long wavelengths so they travel more easily through people.

Question 8c.

Marks	0	1	Average
%	32	68	0.7

20 Hz–20 kHz

Question 9a.

Marks	0	1	2	Average
%	24	29	47	**1.3**

DI is cleaner, sharper, more clinical, has no room component, room reflections, no reverb, feedback

Question 9b.

Marks	0	1	Average
%	49	51	**0.5**

An active DI requires phantom power or batteries, whereas a passive DI does not as it uses a transformer to perform the impedance matching/balancing.

Question 9c.

Marks	0	1	2	Average
%	66	17	17	**0.5**

Active DI box

- for a passive instrument to help boost signal
- low output/vintage/passive instruments like a double bass
- run over long distances

Passive DI box

- for an active instrument to lower gain
- active instruments such as a keyboard
- so that there is no pop during the changeover of instruments

Question 10

Marks	0	1	2	3	4	Average
%	5	8	20	33	33	**2.8**

Any four of:

- instrumentation
- examples of similar style recordings
- copyright
- time available
- cost/budget
- number/length of songs
- plan of positioning of players for visual cue.

Question 11

Marks	0	1	2	3	4	5	6	7	8	Average
%	5	6	13	8	19	12	17	6	15	**4.5**

Task	Microphone(s)	Reason
stereo recording of a choir in a studio	two small diaphragm condenser microphones	Any one of: Doesn't produce a lot of bottom-end, condensers will give the most natural sound, need two for stereo
reinforcing a kick drum at a live gig	large diaphragm microphone	Any one of: High SPL, good LF response
broadcasting a television newsreader	lapel microphone	Any one of: Low visual impact, close to sound source
reinforcing a chorus in a stage musical	hung miniature shotgun microphones	Any one of: Low visual impact, does not obstruct performers, good off-axis rejection

Question 12a.

Marks	0	1	Average
%	67	33	**0.4**

6 dB

Question 12b.

Marks	0	1	Average
%	76	24	**0.3**

120 dB SPL

Question 12c.

Marks	0	1	Average
%	71	29	**0.3**

0 dB SPL

Question 12d.

Marks	0	1	Average
%	97	3	**0.1**

Line level, ØVU or –20 dbfs

Question 13

Marks	0	1	2	Average
%	39	32	29	**0.9**

- Ø: phase/invert
- Ω: resistance/ohms/impedance

Question 14a.

Marks	0	1	Average
%	27	73	**0.8**

48 volts DC

Question 14b.

Marks	0	1	Average
%	58	42	**0.4**

Reduce/decrease signal/volume/level

Question 14c.

Marks	0	1	2	Average
%	58	16	26	**0.7**

The graphic equaliser has fixed frequencies/Q/level whereas the parametric equaliser has variable/adjustable frequencies/Q/level.

Question 15a.

Marks	0	1	Average
%	88	12	**0.1**

Rigging/rigger license

Question 15b.

Marks	0	1	2	3	4	Average
%	5	3	17	8	67	3.3

Item description	Explanation of how it minimises risk
work boots made of tough material with steel capping across toe area	reduce damage to feet/toes if an item is dropped on them
matts and coverings	eliminate tripping hazards
safety glasses with impact resistant tinted lenses and side/top shields	• reduce the likelihood of foreign objects entering eye socket • anti-fog lenses that avoid steam build-up that impairs vision • tinted to help vision in very bright light and to protect against UV
rigger's gloves made from hard wearing and durable material	increases grip and prevents slipping when working with rope/cabling for long periods of time
railings for riggers	prevents falls
high-visibility safety apparel (i.e. vests, bibs, overalls)	increases the visibility of the wearer in low/poor lighting so other people can see them
hard hat helmet worn on head with strap under chin	reduces injury to the head through suspension bands and space inside the helmet that spreads the force of the impact over the top of the head and reduces direct impact to the skull
sunscreen applied to skin exposed to sun	reduces likelihood of sunburn and skin cancer through ingredients that reflect or scatter UV radiation (i.e. zinc) and/or absorb UV radiation and dissipate it as heat
hearing protectors (i.e. earplugs) for ear canals	reduces the noise exposure level and the risk of hearing loss by blocking the ear canal