



Mark Scheme (Results)

Summer 2024

Pearson Edexcel GCE
Music Technology (8MT0)
Paper 4: Producing and Analysing

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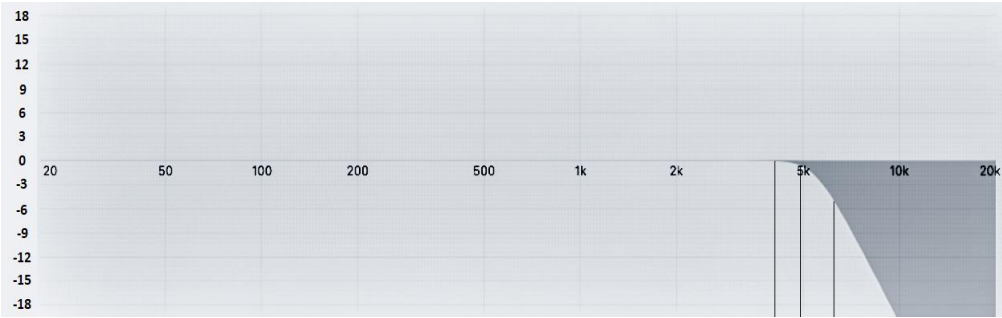
General Marking Guidance

- All candidates must receive the same treatment. Examiners must mark the first candidate in exactly the same way as they mark the last.
- Mark schemes should be applied positively. Candidates must be rewarded for what they have shown they can do rather than penalised for omissions.
- Examiners should mark according to the mark scheme not according to their perception of where the grade boundaries may lie.
- There is no ceiling on achievement. All marks on the mark scheme should be used appropriately.
- All the marks on the mark scheme are designed to be awarded. Examiners should always award full marks if deserved, i.e. if the answer matches the mark scheme. Examiners should also be prepared to award zero marks if the candidate's response is not worthy of credit according to the mark scheme.
- Where some judgement is required, mark schemes will provide the principles by which marks will be awarded and exemplification may be limited.
- When examiners are in doubt regarding the application of the mark scheme to a candidate's response, the team leader must be consulted.
- Crossed out work should be marked UNLESS the candidate has replaced it with an alternative response.

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Question number	Answer	Mark
1(a)(i)	A (1) B is incorrect because a clave is a light wooden sound C is incorrect because a cowbell is a thick metallic sound D is incorrect because a tambourine is a jangly sound	(1)
1(a)(ii) Type 1	Give a human feel (1) Match the performance of other parts (1) More groove / not mechanical (1)	(1)
1(a)(iii) Type 1	To have space or separation in the mix (1) <u>Wider</u> stereo (1) Contrast with hi-hat (accept mention of other parts of the kit e.g. kick drum) (1) To replicate the position to the side of the drum kit (1) Panned from audience perspective (for right hand drummer) (1) High frequency content so can be panned off centre (1)	(2)
1(b) (i) Type 2	Kick / bass drum (1)	(1)
1(b)(ii) Audio examiner	“MS q1.wav” shows the edit for full marks. Drums are in time throughout/correct pattern used (1) There are no glitches/cut drums between bars 7-10 (1) No changes in level (1) The cymbal from bar 7 has not been copied/first 3 beats taken from bar 8 (1) If bar 9 is a straight copy of all of Bar 8, Max 2. If copied out of time max 1 If bar 9 is a straight copy of all of Bar 7, Max 2. If the drums are not soloed/incomplete/metronome left on, only assess timing. Max 2.	(4)

Question number	Answer	Mark
2(a) Type 3	A filter changes the harmonic content (1) of a synthesiser waveform and an LFO is used for modulation (1). It is not drive because this relates to distortion It is not pitch because filtering leaves pitch unaltered It is not pitch bend wheel because this acts on the pitch not the filter cut off It is not delay because there is no repeat of the original signal	(2)
2(b) (i) Type 3	Low (1) pass (1) (filter) Accept alternative spellings	(2)
2(b) (ii) Type 1	X axis: Frequency (1) Hz / kHz / Hertz (1) Y axis: Gain / level / attenuation / amplitude / volume (1) dB / decibels (1)	(4)

2(b) (iii) TYPE 1	See picture: Region between the break point and 5k (1) Region from 5k to the right line (2) 	(2)
2(c) Audio examiner	Two sawtooth oscillators and no effects (1) accept square or pulse waves Both in same octave and transposed to correct octave (1) Slight detune applied (1) LPF matches example / equal or duller than Stand A (1) If response has submitted bars 20-23 only then award 0. Insufficient to assess	(4)
2(d) Audio examiner	Correct rate ($1/16^{\text{th}}$ T) (1) Mono (1) Only in bars 3 to 6 with no clicks & glitches (1) If not soloed, then assess what can be heard clearly; clicks/glitches cannot be assessed.	(3)

Question number	Answer	Mark																																		
3(a) TYPE 1	Any three from: Choice of timbres (1) Change timbre after recording (1) Quantise (1) Velocity editing (1) Easy to correct performance errors (1) Can create complex musical parts (1) Slides over several octaves (1) Wide range of pitches (1) Stays in tune (1) No mic/amp/instrument needed (1) Less noise (1) Could suit the style of the song (1)	(3)																																		
3(b) TYPE 1	<table border="1"><tr><td colspan="2">Bass guitar and amplifier settings</td></tr><tr><td colspan="2">Any two of:</td></tr><tr><td>EQ on amplifier (1) Use tone (EQ) controls on bass (1)</td><td>to enhance bass/mid range (1)</td></tr><tr><td>Large speakers in cabinet (1) Award any suitable speaker configuration (1)</td><td>Full frequency response in low end (1)</td></tr><tr><td>Pickup selection (1)</td><td>Enhance mid range (1)</td></tr><tr><td>Valve amp (1)</td><td>Adds Warmth (1) Harmonic distortion (1)</td></tr><tr><td>Bass guitar volume on max/high (1)</td><td>Better SNR (1)</td></tr></table> <table border="1"><tr><td colspan="2">Microphone type</td></tr><tr><td colspan="2">Any two of:</td></tr><tr><td>Dynamic (1)</td><td>Can handle high SPL (1) Frequency boost in mid range (1) HF roll off above 12kHz not important (1)</td></tr><tr><td>Cardioid (1)</td><td>Rejects room sound (1)</td></tr><tr><td>Condenser (1) (Only accept if qualified)</td><td>Take care not to overload (1) Pad (1)</td></tr><tr><td>Large diaphragm (1)</td><td>Good low frequency capture (1)</td></tr></table> <table border="1"><tr><td colspan="2">Microphone position</td></tr><tr><td colspan="2">Any two of:</td></tr><tr><td>Near centre of speaker (1)</td><td>Full frequency response (1)</td></tr><tr><td>Close mic (1)</td><td>Proximity effect (1) Reduces room ambience/background noise (1)</td></tr></table>	Bass guitar and amplifier settings		Any two of:		EQ on amplifier (1) Use tone (EQ) controls on bass (1)	to enhance bass/mid range (1)	Large speakers in cabinet (1) Award any suitable speaker configuration (1)	Full frequency response in low end (1)	Pickup selection (1)	Enhance mid range (1)	Valve amp (1)	Adds Warmth (1) Harmonic distortion (1)	Bass guitar volume on max/high (1)	Better SNR (1)	Microphone type		Any two of:		Dynamic (1)	Can handle high SPL (1) Frequency boost in mid range (1) HF roll off above 12kHz not important (1)	Cardioid (1)	Rejects room sound (1)	Condenser (1) (Only accept if qualified)	Take care not to overload (1) Pad (1)	Large diaphragm (1)	Good low frequency capture (1)	Microphone position		Any two of:		Near centre of speaker (1)	Full frequency response (1)	Close mic (1)	Proximity effect (1) Reduces room ambience/background noise (1)	(2 + 2 + 2)
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Question number	Answer	Mark
4(a) (i) TYPE 1	From open door to control room (1) Spill from headphones (1) Headphones too loud (1) Open back headphones (1) One earpiece off (1) Talkback speaker in room (1) Engineer in recording room (1)	(2)
4(a) (ii) TYPE 1	Talking is at the same time as the singing (1) It would remove singing as well as talking (1) Noise gate can only remove noise when the singer is not singing (1)	(2)
4 (a) (iii) Audio examiner	Vocal track talking & noise removal (from 47" to 52") 16:1:1 pitch is F (1) 16:2:1 pitch is D (1) 16:2:4 pitch is Bb (1) Correct rhythm and note length (1) No changes in level (1) No glitches or artefacts in bars 15 – 17; no autotune applied in rest of song (1) All noise and talking removed, start of next phase in bar 17 not cut (1) If bar 15 not copied and re-pitched, max 1 for any noise removal If no marks are awarded above, award 1 mark if there has been an unsuccessful attempt at removing the noise. If the part is not soloed or the metronome is left on, then glitches/artefacts/talking/noise cannot be assessed; timing & note length can only be assessed if clearly audible. If response has submitted bars 15-16 only then award 0. Insufficient to assess.	(7)
4 (b) (i) TYPE 1	Exaggerated S or SH sounds (1) Too close to microphone (1) On or off axis (with justification) (1) Poor acoustic environment for recording / harsh reflections (1) Poor microphone / upper mid presence peak (1) Excessive compression (1) Singer's voice has naturally exaggerated sibilance (1) Quiet singer (1)	(2)
4 (b) (ii) TYPE 1	De-esser (1) Compressor used to duck in specific frequency range only (1) Position microphone slightly higher than mouth / off axis (1) Attach a pencil vertically in front of the mic diaphragm (1) Encourage the singer to soften their S and SH sounds (1)	(2)

Question number	Answer	Mark										
5 (a) Audio examiner	'MS q5.wav' shows the correct reverb. Should be clear at end section from 'she just falling' 1.00 Correct length (1) Reverb is audible and at stylistic level (1) Present throughout including bar 16 (1)	(3)										
5 (b) Audio examiner	Repeats quieter than or equal to dry signal (1) Repeats die away by start of bar 3 (1) allow slight overlap in b3 if level fades musically Correct delay time, applied to toms and snares only, nowhere else in song (1) Glitches/clicks present, max 2. Allow cut delay before the hi hat but not if sudden or unmusical. Assess any additional processing as a glitch e.g. filtering	(3)										
5(c) Audio examiner	<table><tr><th>mark</th><th>Gate on drums at end</th></tr><tr><td>3</td><td>Gate has cut out all notes so drums (kick and snare) only play bass synth rhythm. Cymbals are same length as snare. Not truncated more than MS audio</td></tr><tr><td>2</td><td>Gate has cut out all notes so drums only play bass synth rhythm but: Cymbals are too long or too short (snare shorter than MS audio) OR Chattering gate OR Clicks or glitches OR Gate on for most but not all of b20-23</td></tr><tr><td>1</td><td>Gate has cut most but not all of the notes OR Lots of chattering in between snare/kick hits OR Gate on for large sections of song other than b20-23</td></tr><tr><td>0</td><td>No clearly audible gating</td></tr></table>	mark	Gate on drums at end	3	Gate has cut out all notes so drums (kick and snare) only play bass synth rhythm. Cymbals are same length as snare. Not truncated more than MS audio	2	Gate has cut out all notes so drums only play bass synth rhythm but: Cymbals are too long or too short (snare shorter than MS audio) OR Chattering gate OR Clicks or glitches OR Gate on for most but not all of b20-23	1	Gate has cut most but not all of the notes OR Lots of chattering in between snare/kick hits OR Gate on for large sections of song other than b20-23	0	No clearly audible gating	(3)
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5 (d) Audio examiner	Original pitch on first hit, 7 semitone detune on second and 12 semitone detune on the others. <table><tr><td>All pitches and timing correct and no other drums present</td><td>3</td></tr><tr><td>Pitches descend but are not correct; timing correct OR Pitches correct but wrong rhythm</td><td>2</td></tr><tr><td>Pitches correct but cymbal present (copied from bar 19 or elsewhere) OR Attempt made but rhythm or pitch or timbre is incorrect</td><td>1</td></tr><tr><td>No change or no attempt made</td><td>0</td></tr></table> If snare is removed from bar 2, beat 3 then max 2 marks.	All pitches and timing correct and no other drums present	3	Pitches descend but are not correct; timing correct OR Pitches correct but wrong rhythm	2	Pitches correct but cymbal present (copied from bar 19 or elsewhere) OR Attempt made but rhythm or pitch or timbre is incorrect	1	No change or no attempt made	0	(3)		
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5(e) Audio examiner	<table><tr><td>mark</td><td>Balance the mix</td></tr><tr><td>3</td><td>Vocals are most prominent. All parts clearly audible, bass with enough gain. Drums and bass blend effectively.</td></tr><tr><td>2</td><td>Most tracks are balanced but there is some masking e.g. kick drum below bass, keyboard dominates vocal</td></tr><tr><td>1</td><td>One track barely audible e.g. bass OR One track extremely dominant OR Additional tracks OR Levels of tracks are erratic OR One or more tracks partially present</td></tr><tr><td>0</td><td>Not all tracks present</td></tr></table>	mark	Balance the mix	3	Vocals are most prominent. All parts clearly audible, bass with enough gain. Drums and bass blend effectively.	2	Most tracks are balanced but there is some masking e.g. kick drum below bass, keyboard dominates vocal	1	One track barely audible e.g. bass OR One track extremely dominant OR Additional tracks OR Levels of tracks are erratic OR One or more tracks partially present	0	Not all tracks present	(3)
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5(f) Audio examiner	mark	Production of final mix	(3)
	3	Music and reverb tail not cut off at start and end. Up to 1 second of silence at start and end. Output has no distortion and level is not noticeably quiet	
	2	Beginning and end of mix does not cut out. The beginning and / or end have more than 1 second of silence OR Mix output noticeably quiet OR Compressed OR Slightly distorted OR Reverb cut at end	
	1	Obviously chopped start or end OR Mix output is unacceptably low or too high (distorted) OR Excessive compression OR metronome left on OR any part is noticeably out of sync / out of tune / missing OR any additional intrusive processing / panning Ignore previously assessed work e.g. drums out of sync due to q1 edits	
	0	No mix present	

Question Number	Mark (16)
6 type 1	A03 (4 marks)/A04 (12 marks) Marking instructions Markers must apply the descriptors in line with the general marking guidance and the qualities outlined in the levels-based mark scheme below. Responses that demonstrate only A03 without any A04 should be awarded marks as follows: • Level 1 A03 performance: 1 mark • Level 2 A03 performance: 2 marks • Level 3 A03 performance: 3 marks • Level 4 A03 performance: 4 marks Indicative content guidance The indicative content below is not prescriptive and candidates are not required to include all of it. Other relevant material not suggested below must also be credited. Relevant points may include:
A03	A04
Microphone type	
Condenser.	Wide frequency range. Good high frequency response. Fast transient response. Good choice for quiet instrument. Good choice for bright instrument. Allow valid comparison with other mic types max 1.
XLR/canon.	Balanced. Reduces noise.
Large diaphragm.	1" to 2" diameter. Better low/mid frequency response / warmer than small diaphragm condenser.
Mic in cradle.	Reduces rumble/vibrations from ground. Acoustically isolated/damped from stand.
(Single microphone)	Mono recording. No phase issues.
Position	
Pointing at sound hole.	This does not produce the best sound. Boomy / low frequency heavy tone / lacks high frequency/harmonics. Does not capture much sound created by body and strings. Lacks transient detail.
OR Pointing at 12 th fret. (max 1 A03 for position/direction)	Often a preferred position. Picks up a balance of sound from the instrument / picks up strings (and body). Good high frequency response / harmonics. Good transient detail. (Allow comparison between sound hole and 12 th fret)
Mic off-axis. OR Mic on axis. (allow either but not both as not 100% clear)	Reduced HF response. Better frequency response.
20 to 30 cm from instrument. Close mic.	Suitable distance chosen for microphone. Allows sound sources to develop and combine. Reduces ambience. Close to sound hole may pick up too much finger/pick noise when striking strings. String and fret noise captured. Could capture performer noise/breathing/shuffling. Performer is wearing no noisy jewellery.
Mic cable wrapped around stand.	Cable won't be knocked by performer.

Room	
Wooden flooring.	Reflects sound / adds reverberation. Enhances high frequency. Enhances early reflections. Room ambience can be desirable for acoustic guitar.
Acoustic treatment on walls.	Reduces reflections/reverb/ambience/absorbs sound energy. Only reduces mid and high frequency reflections. Too much acoustic treatment loses room character. Best to capture a dry guitar, then add effects afterwards. More control in the mix. Combination of reflective wooden floor and absorbent walls gives a balanced acoustic.
Table near performer.	Table may produce unwanted reflections. Early reflections.
DI	
Direct input/injection. (1/4") jack. Pick-up/transducer.	Pick-up is positioned inside body of guitar. Least preferred option to record in a studio. Clean capture/good SNR. May have exaggerated EQ response / sounds tinny. Missing harmonics provided by strings. Drier/less ambience. Can be combined with mic signal when mixing. Brings forward in the mix.