



Mark Scheme (Results)

Summer 2025

Pearson Edexcel GCSE

Music Technology (9MT0)

Paper 04: Producing and Analysing

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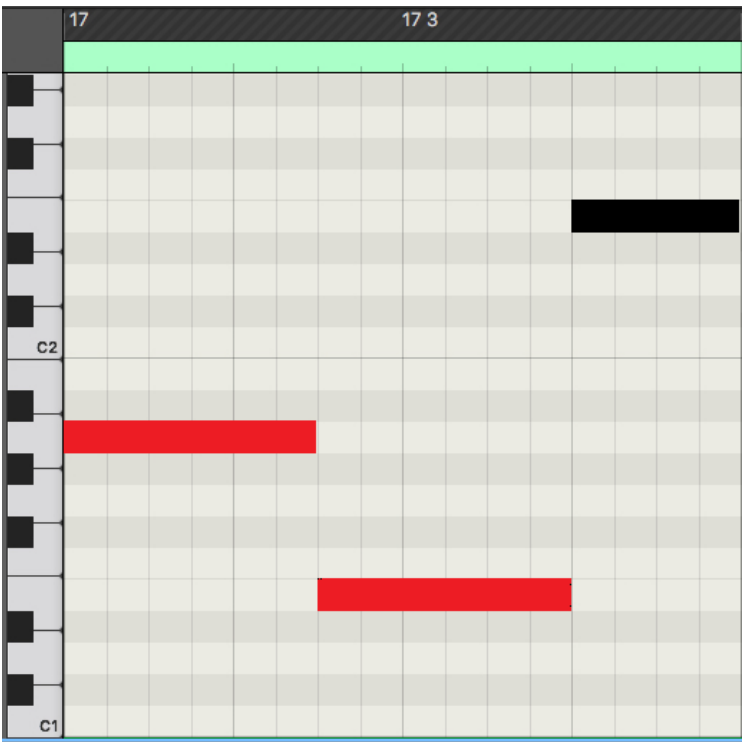
General Marking Guidance

- 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)	D MIDI A is incorrect because there is no reverb on the bass guitar B is incorrect because this is no natural variation in the performance D is incorrect because this is no natural variation in the performance	1

Question Number	Answer	Mark
1(a)(ii)	All same velocity/volume (1) Quantized/perfectly in time (not just 'in time') (1) Tone of every note is the same / sounds sampled (1) No fret noise (1) No fret slides (1) Attack is consistent on each note (1) Less hiss/hum/noise/spill (1) Less reverb (1)	2

Question Number	Answer	Mark
1(b)	1 mark for each correct pitch and rhythm. Max 1 if any note length is incorrect. 	2

Question Number	Answer	Mark
1(c)	"q1.wav" uses the E chord from bar 20 and shifts it forward a little to keep groove and prevent glitches. An edit has been made (i.e. not pitch correction artefacts / effect added) and: • The incorrect chord at 17:2:3 has been removed and replaced (1) • The correct chord at 17:2:3 is present (1) • Rhythm is in time and strumming pattern is maintained in bar 17 (1) [including no further errors introduced in guitar elsewhere in the song] If the candidate has scored the previous 3 marks, give credit for: • Start edit point (e.g. 17:1:1-17:2:3) has no clicks/glitches (1) • End edit point (e.g. 18:1:1) has no clicks/glitches (1) If the part is not soloed, or the metronome is left on, or there are additional effects then: • Chords and rhythm can be assessed if clearly audible. • Edit points are not assessable. If the candidate does not bounce the whole guitar track, award max. 2 (for the first two bullet points) as the rhythm / errors cannot be assessed. If no marks are awarded above, award 1 mark if there has been an unsuccessful attempt at editing (not including effects / pitch correction etc...) the acoustic guitar on 17:2:3. Award 0 marks if candidate has used a MIDI timbre to recreate the acoustic guitar in bar 17.	5

Question Number	Answer	Mark
1(d)	Both files are same performance / recorded at the same time (1) Both files are similar (perceived) level (1) DI has less (performer) noise (1) DI has less fret noise (1) DI emphasises pick (noise) (1) DI has less dynamic range (1) DI has more sustain (1) Mic has more pronounced transients (1) Mic has more brightness/HF (1) Mic has higher <u>peak</u> level (1) Mic sounds more ambient (1) DI sounds "tinny" / mic sounds warmer/thicker/fuller (1) DI has some sub-bass thuds on the strums (1)	4

Question Number	Answer	Mark									
2(a)	<table border="1"> <thead> <tr> <th></th><th>Velocity in decimal</th><th>Velocity in binary</th></tr> </thead> <tbody> <tr> <td>Highest velocity</td><td>97 (1)</td><td>1100001 (1)</td></tr> <tr> <td>Lowest velocity</td><td>23 (1)</td><td>10111 (1)</td></tr> </tbody> </table> Allow preceding 0s.		Velocity in decimal	Velocity in binary	Highest velocity	97 (1)	1100001 (1)	Lowest velocity	23 (1)	10111 (1)	4
	Velocity in decimal	Velocity in binary									
Highest velocity	97 (1)	1100001 (1)									
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Question Number	Answer	Mark
2(b)	1 mark for each correctly assigned drum sound that plays the correct rhythm, in sync throughout. Kick drum (1) Snare (1) Closed hi-hat (1) [in verse/intro/outro] Ride cymbal (1) [in chorus] High tom (1) Mid tom (1) [tom fills present in 5, 13, 17, 21, 25] [award 1 mark for toms if the wrong way around] Crash cymbal (1) Max. 3 if the kit is not acoustic. If the drums are not soloed, or metronome is switched on, then assess what can be heard clearly.	7

Question Number	Answer	Mark														
3(a)	"synth example.wav" is bars 17-18. <table><tr><td>"Synth" timbre</td></tr><tr><td>Correct octave and pitches throughout (1)</td></tr><tr><td>Square wave (1). Allow saw, pulse or triangle. Not sine.</td></tr><tr><td>Monophonic without note overlaps (1)</td></tr><tr><td>Subtle portamento (1)</td></tr><tr><td>Clearly audible in 17, 20, 22 where there are larger intervals</td></tr><tr><td>Amplitude and filter envelope is correct (1): A=soft, D=max, S=max, R=short <i>Award 0 if there are note overlaps as the attack is masked</i></td></tr><tr><td>Muted sound from low cut off frequency/sine wave with no filter envelope; resonance isn't a feature. (1)</td></tr><tr><td>LFO giving subtle Fc wobble with similar LFO speed (1) Accept subtle tremolo or vibrato.</td></tr><tr><td>No effects and mono signal (1). <i>Award 0 if any FX (except modulation FX) are added.</i></td></tr><tr><td>If synth part is not soloed, has effects, or the metronome is switched on, assess what can be heard clearly.</td></tr><tr><td>Envelopes are not assessable if the metronome is switched on.</td></tr><tr><td>If instrument is not a synthesiser (e.g. bass guitar/piano) then award octave only.</td></tr><tr><td>If a candidate has only submitted bars 17-18 then award 0 for all of question 3(a). Insufficient work has been submitted in 3(a) to assess.</td></tr></table>	"Synth" timbre	Correct octave and pitches throughout (1)	Square wave (1). Allow saw, pulse or triangle. Not sine.	Monophonic without note overlaps (1)	Subtle portamento (1)	Clearly audible in 17, 20, 22 where there are larger intervals	Amplitude and filter envelope is correct (1): A=soft, D=max, S=max, R=short <i>Award 0 if there are note overlaps as the attack is masked</i>	Muted sound from low cut off frequency/sine wave with no filter envelope; resonance isn't a feature. (1)	LFO giving subtle Fc wobble with similar LFO speed (1) Accept subtle tremolo or vibrato.	No effects and mono signal (1). <i>Award 0 if any FX (except modulation FX) are added.</i>	If synth part is not soloed, has effects, or the metronome is switched on, assess what can be heard clearly.	Envelopes are not assessable if the metronome is switched on.	If instrument is not a synthesiser (e.g. bass guitar/piano) then award octave only.	If a candidate has only submitted bars 17-18 then award 0 for all of question 3(a). Insufficient work has been submitted in 3(a) to assess.	8
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Question Number	Answer	Mark
3(b)	20:1:1:1 plays E and no other errors introduced into synth part (1)	1

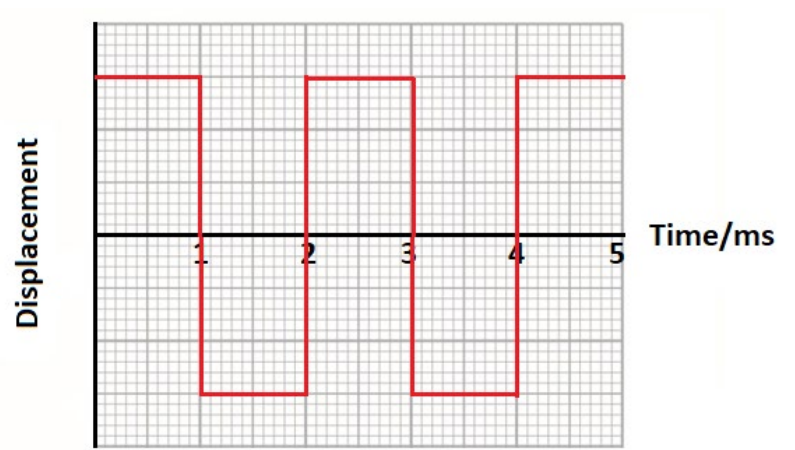
Question Number	Answer	Mark
3(c)(i)	Award one mark for the following: • Square • Square wave • Pulse wave with equal mark space ratio • 50% pulse/rectangle	1

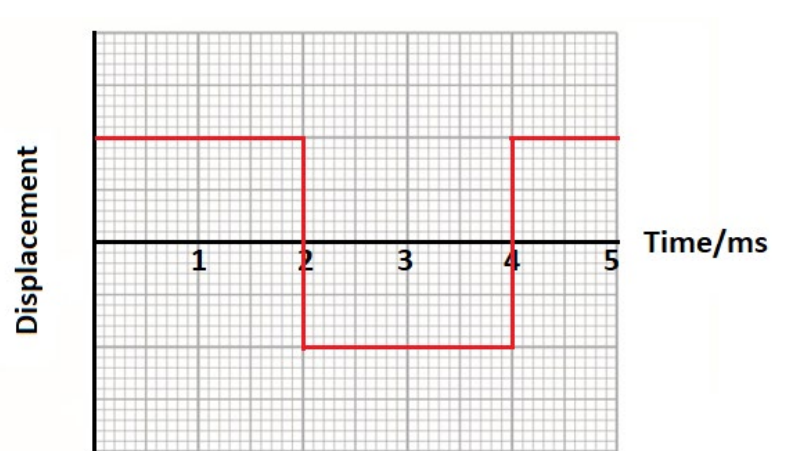
Question Number	Answer	Mark
3(c)(ii)	Award one mark for the following: • 2	1

Question Number	Answer	Mark
3(c)(iii)	Award one mark for the following: • 0.002 • 2×10^{-3} • 1/500 Allow error carried forward.	1

Question Number	Answer	Mark
3(c)(iv)	Award one mark for the following: • 500 Allow error carried forward.	1

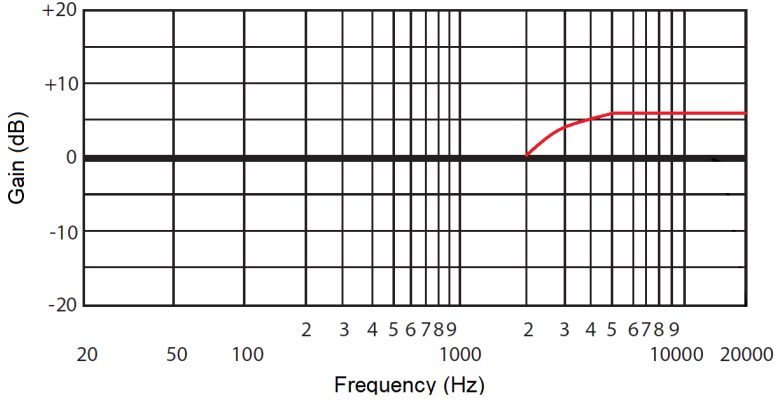
Question Number	Answer	Mark
3(c)(v)	Award 1 mark for B if part (iv) is correct.  Allow error carried forward; award 1 mark for the correct pitch derived from the frequency in 3(c)(iv) for frequencies of 30Hz or above. Allow description of the pitch if the candidate identifies that it is between two notes (e.g. 'between B and C'). If more than one pitch is drawn then award 0.	1

Question Number	Answer	Mark
3(c)(vi)	Award 1 mark for a louder square wave with period of 2ms and no DC offset. 	1

Question Number	Answer	Mark
3(c)(vii)	Award 1 mark for a square wave with same amplitude as figure 1 and period of 4ms and no DC offset. 	1

Question Number	Answer	Mark										
3(d)	1 mark for each type of quantise up to a maximum of 2 (AO3). 1 mark for each comparison point (AO4). <table><tr><th>A03</th><th>A04</th></tr><tr><td colspan="2">Drums</td></tr><tr><td>Unquantised / gently quantised / groove quantise / swing quantise / percent quantise / humanise / randomised (1)</td><td>Loose/live/human/realistic feel (1) Similar/grooves to acoustic guitar (1)</td></tr><tr><td colspan="2">Synth</td></tr><tr><td>Hard quantised / 1/16 / 1/8 (1) Not just 'quantise'.</td><td>Mechanical/tight(er)/in time (1) Doesn't match loose performance of song (1)</td></tr></table>	A03	A04	Drums		Unquantised / gently quantised / groove quantise / swing quantise / percent quantise / humanise / randomised (1)	Loose/live/human/realistic feel (1) Similar/grooves to acoustic guitar (1)	Synth		Hard quantised / 1/16 / 1/8 (1) Not just 'quantise'.	Mechanical/tight(er)/in time (1) Doesn't match loose performance of song (1)	4
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Question Number	Answer	Mark
4(a)	Subtle / light / retains natural tone (1) Notes drawn in tune (1) Slow response speed / 100-800ms (not 'low speed') (1) 10-70% (1) Medium tolerance / 10-25 cents (1) Vibrato audible / some reduction in vibrato (1)	2

Question Number	Answer	Mark
4(b)	Curve: high shelf boost 2.5-10dB (1) Frequency: high shelf mid point of slope 2kHz-5kHz (1) (measure the mid point in the gain domain / y axis) Max 1 if any additional boosts or cuts. 	2

Question Number	Answer	Mark																												
4(c)	1 mark for each feature to a maximum of 4 (AO3). 1 mark for each analytic point (AO4). <i>Do not double credit repeats shown in italics.</i> e.g. <table><tr><th>AO3</th><th>AO4</th></tr><tr><td colspan="2">Mic placement / acoustics</td></tr><tr><td>Close mic (5-45cm / 2-18 inches) (1)</td><td><i>Not much reverb/noise (1)</i> <i>More sibilance / lip smacks / breath (1) could be reduced by de-esser (1)</i></td></tr><tr><td>Pop shield present (1)</td><td>Plosives not prominent (1)</td></tr><tr><td>Noisy <u>at start and end</u> (1)</td><td>Noise can easily be trimmed (1) No click track / headphone spill (1) Headphone level must be low / headphones fitted snugly / closed back headphones (1)</td></tr><tr><td colspan="2">Levels</td></tr><tr><td>No distortion (1)</td><td>Low level (1) Lots of headroom (1) Level peaks at <u>-9dB</u> (1) Could cause hiss / quantisation noise (1) Wide dynamic range (1) difficult to capture without distortion (1)</td></tr><tr><td colspan="2">Condenser mic</td></tr><tr><td></td><td>Good high frequency response / wide frequency range (not 'high frequency response') (1) Good transient response (1) <i>More sibilance / lip smacks / breath (1) could be reduced by de-esser (1)</i> <i>Vocal cuts through mix (1)</i></td></tr><tr><td>Cardioid (1)</td><td><i>Not much reverb/noise (1)</i></td></tr><tr><td colspan="2">High shelf EQ boost</td></tr><tr><td></td><td><i>Vocal cuts through mix (1)</i> [don't credit 'brighter' / 'clearer' / 'airy' etc... because these are given in part (b)] <i>More sibilance / lip smacks / breath (1) could be reduced by de-esser (1)</i> [don't credit frequency / boost amount associated with high shelf as given in part (b)]</td></tr><tr><td colspan="2">HPF</td></tr><tr><td>Cuts low frequencies (1)</td><td>Cut off frequency 20 -160Hz (1) Reduces rumble / hum (1) Reduces plosives (1) Reduces proximity effect (1) Makes space for other tracks in mix (1) Doesn't affect vocal tone (because the high pass filter only cuts below vocal range) (1)</td></tr></table> Points about EQ must be clearly linked to high shelf or HPF to receive credit.	AO3	AO4	Mic placement / acoustics		Close mic (5-45cm / 2-18 inches) (1)	<i>Not much reverb/noise (1)</i> <i>More sibilance / lip smacks / breath (1) could be reduced by de-esser (1)</i>	Pop shield present (1)	Plosives not prominent (1)	Noisy <u>at start and end</u> (1)	Noise can easily be trimmed (1) No click track / headphone spill (1) Headphone level must be low / headphones fitted snugly / closed back headphones (1)	Levels		No distortion (1)	Low level (1) Lots of headroom (1) Level peaks at <u>-9dB</u> (1) Could cause hiss / quantisation noise (1) Wide dynamic range (1) difficult to capture without distortion (1)	Condenser mic			Good high frequency response / wide frequency range (not 'high frequency response') (1) Good transient response (1) <i>More sibilance / lip smacks / breath (1) could be reduced by de-esser (1)</i> <i>Vocal cuts through mix (1)</i>	Cardioid (1)	<i>Not much reverb/noise (1)</i>	High shelf EQ boost			<i>Vocal cuts through mix (1)</i> [don't credit 'brighter' / 'clearer' / 'airy' etc... because these are given in part (b)] <i>More sibilance / lip smacks / breath (1) could be reduced by de-esser (1)</i> [don't credit frequency / boost amount associated with high shelf as given in part (b)]	HPF		Cuts low frequencies (1)	Cut off frequency 20 -160Hz (1) Reduces rumble / hum (1) Reduces plosives (1) Reduces proximity effect (1) Makes space for other tracks in mix (1) Doesn't affect vocal tone (because the high pass filter only cuts below vocal range) (1)	8
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Question Number	Answer	Mark
4(d)(i)	C Converts varying voltage to binary code A is incorrect because this describes DAC B is incorrect because this describes a microphone D is incorrect because this describes a speaker	1

Question Number	Answer	Mark
4(d)(ii)	Accept any arrow that indicates the audio interface, but not the leads. 	1

Question Number	Answer	Mark
4(d)(iii)	Do not credit definitions of the terms. Increasing sample rate: Increases <u>high</u> frequency response (accept 'brighter') (1) Reduces aliasing (1) Increasing bit-depth: Improves signal to noise ratio/dynamic range / less noise / more precise representation of amplitude (1) Either: (max. 1) • Reduces artefacts • Reduces 'graininess' / distortion (not 'clipping') • More accurate/smooth representation <u>of the waveform/(analogue) signal</u> Not 'clearer' / 'improved' / 'more detailed' etc...	2

Question Number	Answer	Mark										
5(a)	<table><tr><td></td><td>Double tracking of acoustic guitar</td></tr><tr><td>3</td><td>Excellent double tracking effect which sounds like two separate hard panned acoustic guitar parts similar to “q5.wav” throughout.</td></tr><tr><td>2</td><td>A wide stereo modulation effect has been applied but it sounds like one processed guitar.</td></tr><tr><td>1</td><td>A narrow stereo effect or reverb has been applied but it sounds like one processed guitar. OR Guitar is double tracked in mono / phases intrusively / delay time too long / has delay feedback / moving panning. OR Double tracking not always present.</td></tr><tr><td>0</td><td>There is no audible evidence of double tracking on the acoustic guitar. OR No mix present.</td></tr></table>		Double tracking of acoustic guitar	3	Excellent double tracking effect which sounds like two separate hard panned acoustic guitar parts similar to “q5.wav” throughout.	2	A wide stereo modulation effect has been applied but it sounds like one processed guitar.	1	A narrow stereo effect or reverb has been applied but it sounds like one processed guitar. OR Guitar is double tracked in mono / phases intrusively / delay time too long / has delay feedback / moving panning. OR Double tracking not always present.	0	There is no audible evidence of double tracking on the acoustic guitar. OR No mix present.	3
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5(b)	<table><tr><td></td><td>Management and control of the vocal dynamics There are loud vocal peaks: 14-15, 18-19 Vocal dips: 6, 17</td></tr><tr><td>3</td><td>The verse and chorus are well-balanced. All of the vocal is clearly audible and peaks are controlled. Volume level is matched in bar 5. Overall, the dynamic range is = 'MS q5.wav'</td></tr><tr><td>2</td><td>The verse and chorus are well-balanced. All of the vocal is clearly audible and peaks are controlled. Overall, the dynamic range is = 'MS q5.wav' BUT Attack too long causing excessive transients OR Volume not matched to bars 2-5 OR Bars 2-5 are compressed</td></tr><tr><td>1</td><td>There is some improvement in the balance between verse and chorus but peaks still remain. The vocals have clearly audible compression > 'MS q5 unmixed.wav' and the dynamic range is reduced, however some parts of the vocal are partially masked/uneven level. OR Clearly audible volume automation.</td></tr><tr><td>0</td><td>No significant compression can be identified on the vocal. OR No mix present.</td></tr></table>		Management and control of the vocal dynamics There are loud vocal peaks: 14-15, 18-19 Vocal dips: 6, 17	3	The verse and chorus are well-balanced. All of the vocal is clearly audible and peaks are controlled. Volume level is matched in bar 5. Overall, the dynamic range is = 'MS q5.wav'	2	The verse and chorus are well-balanced. All of the vocal is clearly audible and peaks are controlled. Overall, the dynamic range is = 'MS q5.wav' BUT Attack too long causing excessive transients OR Volume not matched to bars 2-5 OR Bars 2-5 are compressed	1	There is some improvement in the balance between verse and chorus but peaks still remain. The vocals have clearly audible compression > 'MS q5 unmixed.wav' and the dynamic range is reduced, however some parts of the vocal are partially masked/uneven level. OR Clearly audible volume automation.	0	No significant compression can be identified on the vocal. OR No mix present.	3
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Question Number	Answer	Mark
5(c)	In 'vocal.wav' bar 20, "love" is G# instead of A. Only award the below marks if the pitch has been changed: Vocal syllable is correct on "love" (1). Timing is correct with no clicks, glitches, extreme formant/octave changes, or volume/panning changes (1). Pitch is A/C# (1) If the vocal is masked by other parts in bar 20, assess what can be heard clearly.	3

Question Number	Answer	Mark
5(d)	Reverb in bar 5-22. Stereo reverb is present throughout bars 5-22 (1) [award 0 if reverb is mono] Reverb settings match bar 5, "The rain" (1) [1.8s reverb quite wet] [award 0 if glitch in bar 5] Reverb in bars 22-25. Reverb is present anywhere in bars 22-25 (1) There is some kind of vocal fade throughout bars 22-25 (1) There is some change of wet/dry balance gradually throughout bars 22-25 (1) Dry level decreases to $-\infty$ through 22-25, leaving the wet level constant (1) Award 0 for reverb in bars 22-25 if candidates copy and paste the introduction.	6

Question Number	Answer	Mark										
5(e)	Supplied audio: • bass loud -2dB peak (mastered loud as possible) • acoustic guitar -6dB peak (mastered at 0dB on faders, unity) • vocals quiet -9dB peak (volume automation adjusted to -5db) • drums are MIDI • synth is MIDI <table border="1"><thead><tr><th></th><th>Balance and blend</th></tr></thead><tbody><tr><td>3</td><td>Balanced and blended across all parts of the mix. Vocals sit on top of mix and synth is blended similar to 'MS q5.wav'</td></tr><tr><td>2</td><td>Most tracks are balanced with some masking. A few misjudgements, e.g. synth over vocals at start of chorus</td></tr><tr><td>1</td><td>Balanced so that one track is barely audible (e.g. vocal <= 'MS q5 unbalanced') or is too dominant. OR Not all of a track present affecting balance OR Additional tracks. OR Erratic volume changes.</td></tr><tr><td>0</td><td>No mix present OR Not all tracks present</td></tr></tbody></table> Ignore previously assessed work e.g. vocal compression		Balance and blend	3	Balanced and blended across all parts of the mix. Vocals sit on top of mix and synth is blended similar to 'MS q5.wav'	2	Most tracks are balanced with some masking. A few misjudgements, e.g. synth over vocals at start of chorus	1	Balanced so that one track is barely audible (e.g. vocal <= 'MS q5 unbalanced') or is too dominant. OR Not all of a track present affecting balance OR Additional tracks. OR Erratic volume changes.	0	No mix present OR Not all tracks present	3
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0	No mix present OR Not all tracks present											

Question Number	Answer	Mark
5(f)	All noise removed at start and end with no additional glitches (1) [allow slight noise 26:3 from acoustic guitar but not spacebar from vocals]. If any track is out of sync masking potential noise, award 0. Fade is present at the end (1). Fade at the end is musical, i.e. is smooth and doesn't fade too fast/slow, end of fade is somewhere between 27:1-29:1 (1).	3

Question Number	Answer	Mark										
5(g)	<table><tr><td></td><td>Presentation of mix</td></tr><tr><td>3</td><td>The guitar strum at start is not cut. The tail is not cut. The mix output is near normalised with no distortion. Allow up to 1 second at the start and after the end of the fade</td></tr><tr><td>2</td><td>The beginning and/or end have a silence of more than 1 second OR The guitar strum at the start is cut. OR The mix output is too low OR is compressed OR there is some slight distortion OR is louder than “MS q5 mixed”. OR Cut tail</td></tr><tr><td>1</td><td>Obviously chopped start or ending (not including transients/tails/guitar strum). OR The mix output is unacceptably low or too high (distorted) OR Excessive use of mix compression causes pumping OR Metronome has not been turned off OR Any part is noticeably out of sync / out of tune / missing OR Any additional intrusive processing / EQ / panning. IGNORE previously assessed work: e.g. vocal tuning, guitar effects from Q1(c) / Q5(a)</td></tr><tr><td>0</td><td>No mix present</td></tr></table>		Presentation of mix	3	The guitar strum at start is not cut. The tail is not cut. The mix output is near normalised with no distortion. Allow up to 1 second at the start and after the end of the fade	2	The beginning and/or end have a silence of more than 1 second OR The guitar strum at the start is cut. OR The mix output is too low OR is compressed OR there is some slight distortion OR is louder than “MS q5 mixed”. OR Cut tail	1	Obviously chopped start or ending (not including transients/tails/guitar strum). OR The mix output is unacceptably low or too high (distorted) OR Excessive use of mix compression causes pumping OR Metronome has not been turned off OR Any part is noticeably out of sync / out of tune / missing OR Any additional intrusive processing / EQ / panning. IGNORE previously assessed work: e.g. vocal tuning, guitar effects from Q1(c) / Q5(a)	0	No mix present	3
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0	No mix present											

Question Number	Answer	Mark
6	AO3 (5 marks) / AO4 (15 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 AO3 without any AO4 should be awarded marks as follows: • Level 1 AO3 performance: 1 mark • Level 2 AO3 performance: 2 marks • Level 3 AO3 performance: 3 marks • Level 4 AO3 performance: 4 marks • Level 5 AO3 performance: 5 marks Indicative content guidance <i>Do not double credit repeats shown in italics.</i> 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:	20

AO3	AO4
Bass drum	
Triangle/sine wave.	Not many harmonics. Low in pitch.
<i>Low pass filter.</i>	Low cut off frequency. 80-200Hz. Removes harmonics / cuts out high frequencies. Bassy tone.
<i>(Amplitude) envelope.</i>	<i>Attack is 0/short.</i> Causing clicks (not 'clipping'). [All subsequent points in this paragraph must be clearly related to clicks] Adds an attack transient. Helps it cut through the mix. Emulates beater click. Waveform is cut at the start/not at zero crossing. Clicks at varying volume. Depends on where the wave is cut. It would be better to sample just one bass drum to make it more consistent. <i>Medium decay/release.</i> <i>0/low sustain. Fades to silence.</i>
Snare drum	
<i>White noise (don't apply SONC with sine wave). Random.</i>	<i>Unpitched. All frequencies at same level. Bright.</i>
<i>Low pass filter.</i>	High resonance. Filter envelope. Cut off frequency starts high, then falls/filter sweep.
<i>(Amplitude) envelope.</i>	<i>Attack is 0/short.</i> <i>Medium decay/release.</i> <i>0 sustain. Fades to silence.</i>
Hi-hat	
<i>White noise. Random.</i>	<i>Unpitched. All frequencies at same level. Bright.</i>
High pass filter.	High cut off frequency / cuts out low and mid frequencies. 2000Hz-9000Hz. Fixed frequency / no filter envelope. Thins out the hi-hat.
<i>(Amplitude) envelope.</i>	<i>Attack is 0/short.</i> Closed hi-hat has short decay/release. Open hi-hat has longer decay/release <u>than closed hi-hat.</u> <i>0 sustain. Fades to silence.</i>
Tom	
Square wave/saw wave.	<i>Bright.</i> Many harmonics. Different pitches for different toms.
No filtering.	
<i>Pitch envelope.</i>	Medium decay. Pitch starts high, then falls.
<i>(Amplitude) envelope.</i>	<i>Attack is 0/short.</i> Hold lasts about 16 th note. <i>Medium decay/release.</i> <i>0 sustain. Fades to silence.</i>

Flexatone	
Triangle/sine wave. Two oscillators.	<i>Bright.</i> Some harmonics (if linked to triangle wave). Detuned/chorus. Clashing interval. High pitched.
LFO.	Mapped to/modulating pitch. Vibrato. Fast rate. 16 th note.
<i>Pitch envelope.</i>	Slow/medium attack. Pitch starts low, then rises.
<i>(Amplitude) envelope.</i>	Inverted/multistage envelope. Volume starts at maximum. Giving initial hit. Volume decreases to minimum. Volume increases. Volume fades <u>to silence</u> . Long release.
All	
Mono.	Centre/focus of mix.
No effects / dry.	
Quantised/step sequenced.	<i>1/16 / 1/4 note for kick.</i>
Monophonic.	

Level	Mark	Descriptor
	0	No rewardable material.
Level 1	1–4	• Demonstrates limited knowledge and understanding of production techniques/technology used, some of which may be misunderstood or confused. (AO3) • Shows limited analysis and deconstruction of production techniques/technology used with little attempt at chains of reasoning. (AO4) • Makes limited evaluative and/or critical judgements about the production techniques/technology used. (AO4) • Makes an unsupported or generic conclusion, drawn from an argument that is unbalanced or lacks coherence. (AO4)
Level 2	5–8	• Demonstrates knowledge and understanding of production techniques/technology used, which are occasionally relevant but may include some inaccuracies. (AO3) • Shows some analysis and deconstruction of production techniques/technology used with simplistic chains of reasoning. (AO4) • Makes some evaluative and/or critical judgements about the production techniques/technology used. (AO4) • Comes to a conclusion partially supported by an unbalanced argument with limited coherence. (AO4)
Level 3	9–12	• Demonstrates clear knowledge and understanding of production techniques/technology used, which are mostly relevant and accurate. (AO3) • Shows clear analysis and deconstruction of production techniques/technology used with competent chains of reasoning. (AO4) • Makes clear evaluative and critical judgements about the production techniques/technology used. (AO4) • Comes to a conclusion generally supported by an argument that may be unbalanced or partially coherent. (AO4)
Level 4	13–16	• Demonstrates detailed knowledge and understanding of production techniques/technology used, which are relevant and accurate. (AO3) • Shows detailed and accurate analysis and deconstruction of production techniques/technology used, with logical chains of reasoning on occasion. (AO4) • Makes detailed and valid evaluative and critical judgements about the production techniques/technology used. (AO4) • Comes to a conclusion, largely supported by a balanced argument. (AO4)
Level 5	17–20	• Demonstrates sophisticated and accurate knowledge and understanding of production techniques/technology used throughout. (AO3) • Shows sophisticated and accurate analysis throughout, and deconstructs production techniques/technology used with logical chains of reasoning throughout. (AO4) • Makes sophisticated and valid evaluative and critical judgements about the production techniques/technology used. (AO4) • Comes to a rational, substantiated conclusion, fully supported by a balanced argument that is drawn together coherently. (AO4)