



**Pearson
Edexcel**

Mark Scheme (Results)

Summer 2018

**Pearson Edexcel GCE
In Music Technology (8MT0) Paper 04**

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Summer 2018

Publications Code 8MT0_04_1806_MS

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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.

Question number	Answer	Mark
Q01(a)(i)	<p>A sample is a digital recording (1) that can be triggered using a MIDI keyboard (1)</p> <p>A distortion effect is not correct because it is the modification caused by overdriving the gain of an audio signal.</p> <p>A filter is not correct because it changes the frequency content of an audio signal</p> <p>A modulation effect is not correct because it applies a cyclical variation to an aspect of an audio signal</p> <p>A pre-amp is not correct because it changes the gain of an audio signal</p>	(2)

Question number	Answer	Mark
Q01(a)(ii)	<p>Any two from:</p> <p>No microphones / recording equipment / drums / drummers needed (1) not just 'no set up'.</p> <p>No spill (1)</p> <p>Sequenced / step input (1)</p> <p>Quantise / timing can be corrected (1)</p> <p>Change tempo (1)</p> <p>Moving notes by hand (1)</p> <p>Tune pitch of samples (1)</p> <p>Change level of samples / velocity editing (1)</p> <p>Identical timbre / sample on every hit (1)</p> <p>Change pan (1)</p> <p>Isolated individual hits can have separate processing and effects (1)</p> <p>Create impossible to play rhythms (1)</p>	(2)

Question number	Answer	Mark
1(a) (iii)	<p>Any three from:</p> <p>Volume (1)</p> <p>Assign sample to a key (1)</p> <p>Note range/zone (1)</p> <p>Original pitch/root note (1)</p> <p>Start point / end point / truncate / strip silence / anchor (1)</p> <p>One shot (1)</p> <p>Forward/reverse (1)</p> <p>Loop on/off (1)</p> <p>Loop direction (1)</p> <p>Pan (1)</p> <p>Velocity layers (1)</p> <p>Sample rate (1)</p> <p>Do not credit synthesis settings, envelope, filter, LFO etc.</p>	(3)

Question number	Answer	Mark
1(b)	<p>'MS q1.wav' shows the edit for full marks.</p> <p>Drums are in time throughout. (1) There are no glitches/changes in level. Slight glitches must be quieter or equal to H (1) Drums edited and cymbal has not been cut off (1)</p> <p>If the drums are not soloed/ metronome left on, only assess timing. If incomplete drum track bounced, assess from Q5 mix audio; max 1 mark.</p>	(3)

Question number	Answer	Mark
2(a)	<p>'MS q2.wav' shows the correct timbre and octave for full marks.</p> <p>Clean bass guitar sound (1) Warm bass guitar tone (1) Correct octave/pitches throughout (1)</p> <p>If the bass is not soloed/metronome left on, then assess what can be heard clearly, max 2.</p>	(3)

Question number	Answer	Mark										
2(b)	<p>'MS q2.wav' shows the correct timing for full marks.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">Mark</th> <th>Editing bass rhythm bar 18</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">3</td> <td>Correct pitch and rhythm</td> </tr> <tr> <td style="text-align: center;">2</td> <td>Rhythm of one of the out of time notes is incorrect, the rest of bar 18 is correct</td> </tr> <tr> <td style="text-align: center;">1</td> <td>Rhythm correct, pitch errors OR Rhythm correct during beat 2 but additional errors introduced</td> </tr> <tr> <td style="text-align: center;">0</td> <td>No change to the timing of the bass or the timing is changed but still incorrect</td> </tr> </tbody> </table> <p>When assessing pitch, ignore octave/pitch errors already assessed in 2(a). If the bass is not soloed/metronome left on, then assess what can be heard clearly.</p>	Mark	Editing bass rhythm bar 18	3	Correct pitch and rhythm	2	Rhythm of one of the out of time notes is incorrect, the rest of bar 18 is correct	1	Rhythm correct, pitch errors OR Rhythm correct during beat 2 but additional errors introduced	0	No change to the timing of the bass or the timing is changed but still incorrect	(3)
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1	Rhythm correct, pitch errors OR Rhythm correct during beat 2 but additional errors introduced											
0	No change to the timing of the bass or the timing is changed but still incorrect											

Question number	Answer	Mark
2(c) (i)	The velocities are all different / not constant velocity (1) Off beats have lower velocity / on beats have higher velocity (2)	(2)

Question number	Answer	Mark
2(c) (ii)	The note lengths are not uniform / slight variations (1) The notes are not quantised (1)	(1)

Question number	Answer	Mark										
2(d)	<table border="1"> <thead> <tr> <th>Mark</th> <th>Editing bass velocities in bar 4</th> </tr> </thead> <tbody> <tr> <td>3</td> <td>Correct pattern of velocities matching bar 3.</td> </tr> <tr> <td>2</td> <td>Some velocity shaping but does not completely match bar 3.</td> </tr> <tr> <td>1</td> <td>All velocities in bar 4 constant but clearly changed from original OR Extreme unmusical changes in velocity OR Velocity mapping inappropriately affecting timbre OR Velocities changed but additional errors introduced</td> </tr> <tr> <td>0</td> <td>All velocities unchanged OR No velocity sensitivity</td> </tr> </tbody> </table> <p>If the bass is not soloed/metronome left on, then assess what can be heard clearly to max 1.</p>	Mark	Editing bass velocities in bar 4	3	Correct pattern of velocities matching bar 3.	2	Some velocity shaping but does not completely match bar 3.	1	All velocities in bar 4 constant but clearly changed from original OR Extreme unmusical changes in velocity OR Velocity mapping inappropriately affecting timbre OR Velocities changed but additional errors introduced	0	All velocities unchanged OR No velocity sensitivity	(3)
Mark	Editing bass velocities in bar 4											
3	Correct pattern of velocities matching bar 3.											
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0	All velocities unchanged OR No velocity sensitivity											

Question number	Answer	Mark
2(e)	2kHz (1) 900Hz OR 5kHz (1)	(2)

Question number	Answer	Mark										
3(a)	'MS q3.wav' shows the correct removal of noise.	(4)										
	<table border="1"> <thead> <tr> <th>Mark</th> <th>Removing noise in vocal at 1:34</th> </tr> </thead> <tbody> <tr> <td>3</td> <td>Paper rustle at the end of bar 42/start of bar 43 has been removed without cutting any of the words and no glitches. Similar to 'MS q3.wav'</td> </tr> <tr> <td>2</td> <td>Slight transient noise or glitches.</td> </tr> <tr> <td>1</td> <td>Intrusive longer noise or glitches. OR Parts of vocal cut out. OR Not soloed/metronome left on.</td> </tr> <tr> <td>0</td> <td>No attempt to cut out noise or a completely silent track.</td> </tr> </tbody> </table>		Mark	Removing noise in vocal at 1:34	3	Paper rustle at the end of bar 42/start of bar 43 has been removed without cutting any of the words and no glitches. Similar to 'MS q3.wav'	2	Slight transient noise or glitches.	1	Intrusive longer noise or glitches. OR Parts of vocal cut out. OR Not soloed/metronome left on.	0	No attempt to cut out noise or a completely silent track.
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0	No attempt to cut out noise or a completely silent track.											
<p>Removing noise in vocal at 1:46 The cough or breath noise is not heard. The last 'no-oh' is not cut short. (1)</p>												

Question number	Answer	Mark										
3(b)	'MS q3.wav' is worth 3 marks. Listen to 0:36 - 0:40	(3)										
	<table border="1"> <thead> <tr> <th>Mark</th> <th>Vocal EQ in bar 16-18</th> </tr> </thead> <tbody> <tr> <td>3</td> <td>Vocal EQ matches the rest of the audio.</td> </tr> <tr> <td>2</td> <td>The vocal is made brighter but does not match the rest of the audio</td> </tr> <tr> <td>1</td> <td>Extreme settings/ wrong bands/ EQ applied to other sections of the vocal.</td> </tr> <tr> <td>0</td> <td>No EQ applied</td> </tr> </tbody> </table>		Mark	Vocal EQ in bar 16-18	3	Vocal EQ matches the rest of the audio.	2	The vocal is made brighter but does not match the rest of the audio	1	Extreme settings/ wrong bands/ EQ applied to other sections of the vocal.	0	No EQ applied
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	2		The vocal is made brighter but does not match the rest of the audio									
	1		Extreme settings/ wrong bands/ EQ applied to other sections of the vocal.									
0	No EQ applied											
<p>Max 2 if any glitches can be heard at edit points. Max 2 if not soloed/metronome left on/other effects added.</p>												

Question number	Answer	Mark
3(c) (i)	Any two from: TRS / Tip Ring Sleeve (1) Jack / Phone / ¼" / 6.3mm (1) Stereo / Balanced (1)	(2)

Question number	Answer	Mark
3(c) (ii)	Any two from: Headphones (1) Insert cable / Y-lead / effects loop / side-chain insert (1) Balanced speaker / monitor cables (1) Balanced amplifier input/output (1) Balanced input/output on audio interface (1) Balanced input/output on headphone amp (1) Balanced input/output on mic pre-amp (1) Balanced input/output on mixing desk (1) Stereo effects return (on mixer) (1) Patchbay patch cable (1) Footswitch (1) Not reference to guitar leads which are unbalanced.	(2)

Question number	Answer	Mark
3(d) (i)	XLR (1) Cannon (1)	(1)

Question number	Answer	Mark
3(d) (ii)	Any three from: Shielded cable / ground (1). Carrying two identical signals (1). Out of phase signals / opposite polarity (1). Differential amplifier (1) signals back in phase (1) cancels noise at end of cable run (1) leaves only original signal (1) Impedance matching (1) Source and Load impedance the same (1)	(3)

Question number	Answer	Mark
3(d) (iii)	Fault in the cable or plug / bad connection (1) not 'faulty socket'. Ground loops (1) not just 'hum' Mains power source (1) Mobile phones (1) Dimmer switches / lighting (1) Noise caused by interference (1) and/or electromagnetic induction (1)	(2)

Question number	Answer	Mark
4(a) (i)	Low frequency (1) oscillator (1)	(2)

Question number	Answer	Mark
4(a) (ii)	Level / amplitude / gain / volume	(1)

Question number	Answer	Mark
4(b) (i)	24 (1) 28 (1)	(2)

Question number	Answer	Mark
4(b) (ii)	Noise from motor or mechanical rotation of speaker horn (1) Wind noise created by displacement of air (1)	(2)

Question number	Answer	Mark
4(b) (iii)	Any two from: Turn up gain on pre-amp (1) Turn up gain on mixer (1) Turn up gain on amplifier (1) Turn up the organ to high/full (1) Hardware amp simulator (1) Amp distortion channel (1) Effect pedal (1) Valves (1) Transistors (1) Tape saturation (1) Not just 'turn up gain' Accept any appropriate brand / model names.	(2)

Question number	Answer		Mark
5(a)	mark	Management and control of the vocal dynamics This is best assessed from 0:45-1:03.	(3)
	3	All of the vocal is clearly audible. Overall, the dynamic range is = 'MS q5.wav'	
	2	The vocals have audible compression > 'MS q5 unmixed.wav' and the dynamic range is reduced, however some parts of the vocal are partially masked/uneven level	
	1	Clearly audible volume automation OR Obvious pumping	
	0	No compression can be identified on the vocal; less compression than F. OR No mix present on CD.	
Ignore previously assessed work e.g. level changes caused by vocal EQ for 3(b).			

Question number	Answer	Mark
5(b)	Vocal 1/4 note delay Correct delay time (1) Repeats have died away by the start of bar 30 and wet less than or equal to dry (1) No level change in dry signal, and delay only applied to the word "yeah" (1) Glitches/clicks present, max 2.	(3)

Question number	Answer	Mark	
5(c)	mark	Reverb on the vocal This is best assessed at 0:09-0:23	(3)
	3	Reverb is clearly audible. Overall reverb same or less than 'MS q5.wav'.	
	2	Overall reverb is more than 'MS q5.wav' OR Reverb bypasses in some parts of the track.	
	1	Serious misjudgement e.g. far too wet/wrong reverb time / too much reverb on other tracks	
	0	No Reverb applied OR other type of effect used	

Question number	Answer	Mark
5(d)	<p>Keyboard tremolo Listen to 1:03-1:08</p> <p>Tremolo present (1) 1/16th rate (1) Mono (1)</p> <p>Max 1 if wrong bars Glitches/clicks present, max 2.</p>	(3)

Question number	Answer	Mark										
5(e)	<table border="1"> <thead> <tr> <th>mark</th> <th>Balance the mix</th> </tr> </thead> <tbody> <tr> <td>3</td> <td>Vocals are most prominent. All parts clearly audible. 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, keyboards dominate vocal</td> </tr> <tr> <td>1</td> <td>One track barely audible 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> </tbody> </table> <p>Ignore previously assessed work, e.g. vocal EQ level.</p>	mark	Balance the mix	3	Vocals are most prominent. All parts clearly audible. Drums and bass blend effectively.	2	Most tracks are balanced but there is some masking e.g. kick drum below bass, keyboards dominate vocal	1	One track barely audible 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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Question number	Answer	Mark		
5(f)	<table border="1"> <tr> <td data-bbox="320 282 440 338">mark</td> <td data-bbox="440 282 1182 338">Production of final mix</td> </tr> </table>	mark	Production of final mix	(3)
	mark	Production of final mix		
	3	<p>Music and reverb/cymbal 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</p>		
	2	<p>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 Cymbal tail or reverb cut at end</p>		
	1	<p>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</p> <p>Ignore previously assessed work e.g. drums out of sync due to q1 edits, bass pitches.</p>		
0	No mix present			

Question number	Indicative content	Mark														
6	<p style="text-align: center;">AO3 (4 marks)/AO4 (12 marks)</p> <p>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.</p> <p>Responses that demonstrate only AO3 without any AO4 should be awarded marks as follows:</p> <ul style="list-style-type: none"> • Level 1 AO3 performance: 1 mark • Level 2 AO3 performance: 2 marks • Level 3 AO3 performance: 3 marks • Level 4 AO3 performance: 4 marks <p>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:</p> <table border="1" data-bbox="312 831 1198 1989"> <thead> <tr> <th data-bbox="312 831 671 869">AO3</th> <th data-bbox="671 831 1198 869">AO4</th> </tr> </thead> <tbody> <tr> <td data-bbox="312 869 671 943">Large diaphragm microphone.</td> <td data-bbox="671 869 1198 943">Good at low & mid frequencies.</td> </tr> <tr> <td data-bbox="312 943 671 1167">Condenser microphone.</td> <td data-bbox="671 943 1198 1167">Good at high frequencies / flat frequency response. Capture breathy quality. Good for female vocalist. Good at quiet sounds / low SPL. Good signal to noise ratio.</td> </tr> <tr> <td data-bbox="312 1167 671 1317">Close-mic recording / about 15 cm.</td> <td data-bbox="671 1167 1198 1317">Proximity effect will still be present. Reduced reverb. Can have effects and processing added in mix.</td> </tr> <tr> <td data-bbox="312 1317 671 1753">Mic too low / droopy mic stand. Microphone is pointing off axis. Music stand used for lyrics positioned too low.</td> <td data-bbox="671 1317 1198 1753">This will affect the frequency response. Quieter. Greater gain required. More noise/reverb. Reduces sibilance. Positioning the mic higher than the mouth would encourage the vocalist to keep their chin up and airways will be freer, producing better vocal performance and tone. Singer moves to see music resulting in inconsistent capture.</td> </tr> <tr> <td data-bbox="312 1753 671 1921">Microphone does not have shock mount/cradle.</td> <td data-bbox="671 1753 1198 1921">Unwanted vibrations being picked up through the floor and mic stand. Use rumble filter/high pass filter/low shelf.</td> </tr> <tr> <td data-bbox="312 1921 671 1989">Other instruments in the room.</td> <td data-bbox="671 1921 1198 1989">Unwanted resonance / noise.</td> </tr> </tbody> </table>	AO3	AO4	Large diaphragm microphone.	Good at low & mid frequencies.	Condenser microphone.	Good at high frequencies / flat frequency response. Capture breathy quality. Good for female vocalist. Good at quiet sounds / low SPL. Good signal to noise ratio.	Close-mic recording / about 15 cm.	Proximity effect will still be present. Reduced reverb. Can have effects and processing added in mix.	Mic too low / droopy mic stand. Microphone is pointing off axis. Music stand used for lyrics positioned too low.	This will affect the frequency response. Quieter. Greater gain required. More noise/reverb. Reduces sibilance. Positioning the mic higher than the mouth would encourage the vocalist to keep their chin up and airways will be freer, producing better vocal performance and tone. Singer moves to see music resulting in inconsistent capture.	Microphone does not have shock mount/cradle.	Unwanted vibrations being picked up through the floor and mic stand. Use rumble filter/high pass filter/low shelf.	Other instruments in the room.	Unwanted resonance / noise.	(16)
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Other instruments in the room.	Unwanted resonance / noise.															

Question number	Answer		Mark
	Acoustic tiles on wall.	Reduce room ambience. Tiles will reduce reflection of mid range and high frequencies. Tiles not thick so will not reduce low frequencies. The wall is not completely covered with tiles so the room is not completely dead.	
	Singer is quite close to the wall behind the microphone.	Unwanted reflections.	
	Mic cable is hanging loose/not attached to stand.	Unwanted noise from cable movement.	
	Pop shield.	Prevents plosives. Plosives cause distortion. Regulates vocalist position. Use rumble filter/high pass filter/low shelf.	
	XLR	Balanced. Reduced noise.	

Level	Mark	Descriptor
	0	No rewardable material.
Level 1	1–4	<ul style="list-style-type: none"> • Demonstrates limited knowledge and understanding of production techniques/technology used, some of which may be inaccurate or irrelevant. (AO3) • Shows limited analysis and deconstruction of production techniques/technology used with unsuccessful attempts 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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)