



Pearson
Edexcel

Mark Scheme (Results)

Summer 2019

Pearson Edexcel GCE
Music Technology (8MT0)
Paper 04: Producing and Analysing

Edexcel and BTEC Qualifications

Edexcel and BTEC qualifications are awarded by Pearson, the UK's largest awarding body. We provide a wide range of qualifications including academic, vocational, occupational and specific programmes for employers. For further information visit our qualifications websites at www.edexcel.com or www.btec.co.uk. Alternatively, you can get in touch with us using the details on our contact us page at www.edexcel.com/contactus.

Pearson: helping people progress, everywhere

Pearson aspires to be the world's leading learning company. Our aim is to help everyone progress in their lives through education. We believe in every kind of learning, for all kinds of people, wherever they are in the world. We've been involved in education for over 150 years, and by working across 70 countries, in 100 languages, we have built an international reputation for our commitment to high standards and raising achievement through innovation in education. Find out more about how we can help you and your students at: www.pearson.com/uk

Summer 2019

Publications Code 8MT0_04_1906_MS

All the material in this publication is copyright

© Pearson Education Ltd 2019

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.

Component 4: Producing and analysing – Mark scheme

Question number	Answer	Mark
1(a)(i)	D White noise	(1)

Question number	Answer	Mark
1(a)(ii)	Any two of: Mobile phone Damaged or malfunctioning audio interface Corrupt drivers Audio incorrectly bussed to bass track from another track Bleed from another track Powering down other equipment Switching off lights Radio frequency interference Synth (noise generator) / Drum machine (accidentally triggered)	(2)

Question number	Answer	Mark
1(b)	'MS q1.wav' shows the edit for full marks. The replacement note is the correct pitch and rhythm and the second note in bar 25 has not been copied with the first. (1) The noise has been removed entirely. (1) There are no glitches/changes in level; the note at the end of bar 23 has not been cut short or altered, bar 25 unaffected. (1) If the bass is not soloed/metronome left on, then assess pitch and rhythm.	(3)

Question number	Answer	Mark
2(a)	Drum 1 – snare (1) Drum 2 – side stick (allow rimshot / edge of snare / woodblock / clave) (1) Drum 3 – kick drum/bass drum (1)	(3)

Question number	Answer	Mark
2(b)	'drum example.wav' shows the correct sounds for full marks. 1 mark for each correct timbre with correct timing. Timbres do not need to exactly match the example but each drum must be recognisable as the correct type. For the hi hats, award two marks as long as both hi hats are closed/pedal and neither are open. If the drums are not soloed/metronome left on, then assess what can be heard clearly. Any type of shaker/cabasa is acceptable but do not credit tambourine. If drums soloed/metronome left on, then assess what can be clearly heard.	(7)

Question number	Answer	Mark
2(c)	C 1/32	(1)

Question number	Answer	Mark
2(d)	Allow incorrect timbres from bar 3 if correct rhythm Hi hat on beat 1 only and Clap correct (1) Drum 1 / Snare correct (1) If kick or other drums present max 1. max. 1 mark if any glitches from doing this as an audio edit. If the drums are not soloed/metronome left on, then assess what can be heard clearly.	(2)

Question number	Answer	Mark
2(e) (i)	Continuous (1) Varying (1) Electrical / electronic (signal) / voltage / circuits (1) Pre-digital technology. Allow 'not digital' (1)	(2)

Question number	Answer	Mark
2(e) (ii)	Makes beats/drums/hits play louder (accept increases velocity) (1) Can be programmed to act on different steps/beats/hits/drums (1) Programmed by selecting the AC position on the track/instrument knob (1) Imitates a real musician / human feel (1)	(2)

Question number	Answer	Mark
2(e) (iii)	Any three from: Limited choice of drum sounds/plugin has more choices (1) Mono/no individual drum outputs (1) Fewer sound editing options / can't change sounds (1) Edited sounds cannot be saved (1) Beat programming features restricted/length of pattern is short (1) Timing resolution restricted (1) No swing quantise / humanise function (1) Limited memory for saving beats (1) Does not have MIDI / Can't be automated (1) Limited ability to be synced (1) only with control voltage (1) Tempo not in bpm (1) Tempo may vary/be inaccurate (1) Analogue has more noise/worse signal to noise ratio (1) Need cables/mixing desk (1) Have to record to tape/DAW and cannot be edited later (1) No visual display (1)	(3)

Question number	Answer	Mark
3(a)	Vocoder	(1)

Question number	Answer	Mark
3(b)	<p>'q3.wav' shows the correct HPF.</p> <p>HPF (1) with suitable cut-off freq around 2kHz (1) (no marks here if wrong filter type) Only applied to phrase from It's to Together, no clicks or glitches, not applied to any other parts (1) (allow wrong filter type)</p> <p>If the vocal is not soloed/metronome left on, then assess what can be heard clearly to max 2.</p>	(3)

Question number	Answer	Mark
3(c)	<p>Any three from:</p> <p>Removes the clicks (1) (not 'clipping')</p> <p>Due to discontinuity/not zero point in audio signal at start or end of segment/clip/region (1)</p> <p>Fade/crossfade creates a zero point at start/end (1)</p> <p>Crossfade on overlapping join (1) can be used to smooth two regions with sustaining sounds (e.g. cymbal crash or strummed guitar) (1)</p>	(3)

Question number	Answer	Mark
3 (d)	<p>'q3.wav' is worth 3 marks. Listen to 1:48 - 1:56 Vocoder in bars 43 to 45</p> <p>'don't even know' removed cleanly, leaving the third 'said' intact and no glitch from start of 'don't' (1)</p> <p>'don't even know if I wanna stay, I don't even know if I wanna' vocoder is copied correctly, ending during 45:4. Original in bars 30 – 31 must be left intact (1)</p> <p>vocoder phrase is copied with the correct timing. If phrase is incomplete allow correct start time/no other rhythm errors (1)</p> <p>Max 2 if any glitches can be heard at edit points. If the vocal is not soloed/metronome left on, then assess what can be heard clearly to max 2.</p>	(3)

Question number	Answer	Mark
4(a) (i)	Electric Piano / (Fender) Rhodes (1)	(1)

Question number	Answer	Mark
4(a) (ii)	Organ – Right (1) Electric Piano (accept other answer given in 4 d i) – Left (1)	(2)

Question number	Answer	Mark
4(b)	Modulation/mod wheel/vibrato/LFO (Accept portamento/glide/pitch bend)	(1)

Question number	Answer	Mark
4(c)	LPF / low pass or BPF or Band boost / allow high cut filter (1) Cutoff / frequency (1) Smoothly / sweeping (1) Rising / opening / low to high / getting higher (1) Brighter / more harmonics (1) Resonant / peak / narrow band (1) Real-time / automated (1) Envelopes / (1)	(4)

Question number	Answer	Mark
4(d)	Sample different pitches (1) Assign it to a key / Assign to a zone (1) Sample must be set to play at original pitch on a note within the zone the sample is assigned to / root note (1) Sample is transposed to cover a range of notes (1) Changing speed of samples changes pitch (1) Sample at (small) intervals/ every few notes (1) Large transpositions of pitch sounds unnatural (1) Single note samples / not phrases (1)	(3)

Question number	Answer	Mark
4(e)	Short delay time (1) 120 – 200 mS / 16 th note or 16 th triplet / close to 16 th note (1) Repeats get duller / less high frequency content / LPF (1) Vintage / tape sound (1) Two to 5 repeats / low feedback / intensity (1) Stereo / ping-pong (1) Wet slightly less than dry / accept other descriptions e.g. 60:40 dry/wet ratio (1)	(3)

Question number	Answer	Mark
5(a)	<p>Management & control of vocal reverb</p> <p>This is best assessed at 0:50 - 1:05; bar 26</p> <p>2 second reverb used on entire vocal (1)</p> <p>Suitable send level/similar to 'MS q5 mixed.wav' (1)</p> <p>Bass and keyboard parts not affected (1)</p> <p>If reverb applied to other parts max. 1</p> <p>If other effects added to vocal max. 1</p>	(3)

Question number	Answer	Mark										
5 (b)	<table border="1"> <tr> <td></td> <td> <p>Keyboard panning</p> <p>Listen to 1:20-1:30.</p> </td> </tr> <tr> <td>3</td> <td>L – R as directed</td> </tr> <tr> <td>2</td> <td> <p>R – L</p> <p>OR</p> <p>C – R</p> <p>OR</p> <p>L – C</p> <p>OR</p> <p>Audible moving panning of keyboard</p> <p>OR</p> <p>Not hard panned.</p> <p>OR</p> <p>Glitch / click on the edit</p> </td> </tr> <tr> <td>1</td> <td> <p>Erratic panning</p> <p>AND/OR</p> <p>Keyboard panned in a single position other than centre.</p> <p>AND/OR</p> <p>Keyboard does not reset to centre in bar 36.</p> <p>AND/OR</p> <p>Keyboard panned but other parts panned noticeably off-centre</p> </td> </tr> <tr> <td>0</td> <td> <p>There is no audible panning automation.</p> <p>OR</p> <p>No mix present on CD.</p> </td> </tr> </table>		<p>Keyboard panning</p> <p>Listen to 1:20-1:30.</p>	3	L – R as directed	2	<p>R – L</p> <p>OR</p> <p>C – R</p> <p>OR</p> <p>L – C</p> <p>OR</p> <p>Audible moving panning of keyboard</p> <p>OR</p> <p>Not hard panned.</p> <p>OR</p> <p>Glitch / click on the edit</p>	1	<p>Erratic panning</p> <p>AND/OR</p> <p>Keyboard panned in a single position other than centre.</p> <p>AND/OR</p> <p>Keyboard does not reset to centre in bar 36.</p> <p>AND/OR</p> <p>Keyboard panned but other parts panned noticeably off-centre</p>	0	<p>There is no audible panning automation.</p> <p>OR</p> <p>No mix present on CD.</p>	(3)
	<p>Keyboard panning</p> <p>Listen to 1:20-1:30.</p>											
3	L – R as directed											
2	<p>R – L</p> <p>OR</p> <p>C – R</p> <p>OR</p> <p>L – C</p> <p>OR</p> <p>Audible moving panning of keyboard</p> <p>OR</p> <p>Not hard panned.</p> <p>OR</p> <p>Glitch / click on the edit</p>											
1	<p>Erratic panning</p> <p>AND/OR</p> <p>Keyboard panned in a single position other than centre.</p> <p>AND/OR</p> <p>Keyboard does not reset to centre in bar 36.</p> <p>AND/OR</p> <p>Keyboard panned but other parts panned noticeably off-centre</p>											
0	<p>There is no audible panning automation.</p> <p>OR</p> <p>No mix present on CD.</p>											

Question number	Answer	Mark
5(c)	<p>Bass EQ correction</p> <p>Assessed from 1:33 bars 39-47</p> <p>Bass less bright (1)</p> <p>Same EQ and volume as earlier in song (1)</p> <p>EQ added and no glitches (1)</p>	(3)

Question number	Answer	Mark
5(d)	<p>Keyboard delay From 1:25 bars 36 - 39</p> <p>Dotted 1/8 note delay time (1) Repeats have died away by the start of bar 40 but present in b39, with smooth fade (1) Wet less than or equal dry and clearly audible. No glitches or level change in dry signal, and delay is not present anywhere else in track. The delay starts at the beginning of bar 36 catching the organ lick (1)</p> <p>If delay present throughout, max. 1</p>	(3)

Question number	Answer	Mark										
5(e)	<p>Question paper audio: Keyboard quietest Bass is loudest Vocals moderate</p> <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</td> </tr> <tr> <td>0</td> <td>Not all tracks present / partial bounce</td> </tr> </tbody> </table> <p>Ignore previously assessed work, e.g. delay level incorrect.</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	0	Not all tracks present / partial bounce	(3)
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											
0	Not all tracks present / partial bounce											

Question number	Answer	Mark										
5(f)	<table border="1" data-bbox="323 286 1177 1400"> <thead> <tr> <th data-bbox="323 286 438 320">mark</th> <th data-bbox="438 286 1177 320">Production of final mix</th> </tr> </thead> <tbody> <tr> <td data-bbox="323 320 438 488">3</td> <td data-bbox="438 320 1177 488"> Music and reverb / keyboard delay 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 </td> </tr> <tr> <td data-bbox="323 488 438 918">2</td> <td data-bbox="438 488 1177 918"> 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 quieter / louder than 'MS q5 mixed.wav' OR Compressed OR Slightly distorted OR Keyboard delay or reverb cut at end (before b48 beat2) </td> </tr> <tr> <td data-bbox="323 918 438 1355">1</td> <td data-bbox="438 918 1177 1355"> Obviously chopped start or end OR Mix output is unacceptably low or too high (distorted) OR Excessive compression OR Metronome left on / drum example left in OR Any part is noticeably out of sync / out of tune / missing OR Any additional intrusive processing / panning </td> </tr> <tr> <td data-bbox="323 1355 438 1400">0</td> <td data-bbox="438 1355 1177 1400">No mix present</td> </tr> </tbody> </table> <p data-bbox="363 1435 802 1469">Ignore previously assessed work</p>	mark	Production of final mix	3	Music and reverb / keyboard delay 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 quieter / louder than 'MS q5 mixed.wav' OR Compressed OR Slightly distorted OR Keyboard delay or reverb cut at end (before b48 beat2)	1	Obviously chopped start or end OR Mix output is unacceptably low or too high (distorted) OR Excessive compression OR Metronome left on / drum example left in OR Any part is noticeably out of sync / out of tune / missing OR Any additional intrusive processing / panning	0	No mix present	(3)
mark	Production of final mix											
3	Music and reverb / keyboard delay 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 quieter / louder than 'MS q5 mixed.wav' OR Compressed OR Slightly distorted OR Keyboard delay or reverb cut at end (before b48 beat2)											
1	Obviously chopped start or end OR Mix output is unacceptably low or too high (distorted) OR Excessive compression OR Metronome left on / drum example left in OR Any part is noticeably out of sync / out of tune / missing OR Any additional intrusive processing / panning											
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>	(16)

AO3	AO4
<p>Noise Gate to reduce hiss / noise Noise below threshold is reduced/removed. Light shows when gain gate is closed / active.</p>	<p>Noise gate threshold set too high. Gate could cut out quiet parts of the vocal. Gate could cut out start/end of words. Value of at least -30 dB or lower would be better. If problems with false triggering / chattering occur then the audio could be edited to remove silent sections between singing.</p>
<p>Compressor. Control dynamic range. Sound above threshold is compressed. Ratio adjusts the amount of compression. Make up makes vocal louder. Mix controls amount of compressed and uncompressed signal.</p>	<p><u>Threshold:</u> Compressor threshold set well for signal with -10dB peak level. The setting will compress the peaks. The setting could compress the louder phrases. Noise will increase / signal to noise ratio will be lower. If the threshold was any lower, this would increase the noise floor with little benefit to reducing dynamic range. Compressor acts on all signal remaining after noise gate, because comp threshold lower than gate threshold.</p> <p><u>Ratio:</u> Medium/ high. Will lead to a narrow dynamic range / heavy compression. Gentle pumping. Breaths being emphasised. More intimate/closer. High ratio could exaggerate the problems of having the threshold too low. Lower ratio could suit a singer with a narrow dynamic range.</p> <p><u>Make up gain:</u> High make up for large amount of gain reduction. Compensate for gain reduction / maintains peak level</p>

<p>EQ/equaliser. Shape frequency content. Parametric / peak & dip / bell filter. High shelf. Low shelf. Two sweepable mids. Fixed bandwidth/Q in mids. (Adjustable) high pass filter/rumble filter.</p>	<p><u>High shelf:</u> 10-12 kHz. Boost 6-10dB. Adds brightness. Dynamic microphone reduced sensitivity about 12kHz, so this setting will most likely not achieve anything worthwhile. May re-introduce some brightness lost by dynamic microphone. Increase noise/hiss.</p> <p><u>High mids control:</u> No gain so there will be no difference to sound. Boosting high mids could add brightness presence/air.</p> <p><u>Low mids control:</u> Boost of 3-5 dB. Could cause sibilance. Presence peak. Help vocal cut through mix. Some dynamic mics have an increased frequency response around 2kHz, so this could be boosting too much in this area.</p> <p><u>Fixed bandwidth mids:</u> Likely to be medium/wide bandwidth / Q value. Good for adding global warmth/presence/brightness. Not narrow enough to be used for cutting problem frequencies.</p> <p><u>Low shelf 100Hz:</u> This region would be boosted by the proximity effect. Boomy vocal sound / too bassy. High gain. Could lead to distortion.</p> <p><u>Hi pass filter set at 50 Hz:</u> This will remove any unwanted low frequencies/rumble/sub bass from the vocal. Reduce proximity effect.</p>
<p>Order of processors is appropriate.</p>	<p>Noise gate set correctly at start of chain means clean signal goes into compressor. Compressor will increase noise floor so gate might not be as effective after. EQ after compressor means once dynamic processing is set for the track, EQ adjustments can be made without changing dynamic range. EQ could correct any colouration caused by the compressor. Disadvantage, compressor not acting on peaks caused by EQ.</p>
<p>Gain structure.</p>	<p>Several processors together can produce noise/hiss.</p>

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)