



Pearson
Edexcel

Mark Scheme (Results)

November 2020

Pearson Edexcel GCE
Music Technology (9MT0)
Paper 3: Listening & Analysing

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Autumn 2020

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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

Music Technology GCE – Component 3: Listening & analysing
9MT0/03 2020 - Mark scheme (v.7)

1. Queen: *The Prophet's Song*

Question Number	Answer	Mark
1(a)	Acceptable ranges shown below – 1 mark per correct response. <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Acoustic guitar</p> </div> <div style="text-align: center;">  <p>Hi-hats</p> </div> <div style="text-align: center;">  <p>Snare drum</p> </div> </div>	3 Grad

Question Number	Answer	Mark
1(b)	Any three of: <ul style="list-style-type: none"> • Reverb (1) • Wah (1) • Phaser / flanger / chorus / modulated delay (1) • Delay (1) • Panning across stereo field (1) 	3 Grad

Question Number	Answer	Mark
1(c)	Delay time: <ul style="list-style-type: none"> • (First tap) timed to 2 beats / minim/ ½-note (1) and second repeat timed to 4 beats (1) OR <ul style="list-style-type: none"> • (First tap) timed to 4 beats (1) and second repeat to 8 beats (1) Other parameters: <ul style="list-style-type: none"> • Analogue/tape delay (1) • Two taps / two <u>different</u> repeats / multi-tap (1) with no feedback (1) • Repeats pan to <u>opposite sides</u> / stereo / ping pong (1) • High wet level (1) 	4 Expert

2. Daft Punk: *Derezzed* from *TRON Legacy*

Question Number	Answer	Mark
2(a)	Any two of: <ul style="list-style-type: none">• Swing quantise/groove quantise• Humanise/iterative quantise/leaving parts unquantised/different quantise value per line• Velocity shaping/accents• Analogue sequencer (1) not matching digital tempo of DAW (1)• Slightly incorrect loop length (1)	2 Grad

Question Number	Answer	Mark
2(b)	<ul style="list-style-type: none">• Low pass/LPF/high cut	1 Grad

Question Number	Answer	Mark
2(c)	Any three of: <ul style="list-style-type: none">• Looping/stuttering/note-repeat• Tape stop/tape slowing effect/pitch bend downwards• Transposition/re-pitching• Reversing• Cutting up the sample into separate beats then reordering it	3 Expert

Question Number	Answer	Mark
2(d)	<ul style="list-style-type: none">• <u>Master/mix bus</u> compressor (1)• Limiter / high ratio (1)• Relatively low threshold (1)• Drums are high energy/volume (1)• A wider range of tracks is constrained by the master limiter (1)• The synthesiser riff may have been keyed/side-chained (1) so that it ducks/reduces in volume automatically when the drums play. (1)	4 Expert

3. The Challengers: *Pipeline*

Question Number	Answer	Mark
3(a)	Tremolo/trem Accept any recognisable spelling of tremolo.	1 Clerical

Question Number	Answer	Mark
3(b)	Any three of: <ul style="list-style-type: none"> • Resonating spring/spring under tension. (1) • Signal sent down the spring using a speaker/transducer. (1) • Wet signal picked up at other end using another transducer/electromagnetic pick-up. (1) • Reverb time/tone changed by adjusting spring tension. (1) • Physical attributes of the spring give a mid range/'twangy' sound. (1) 	3 Expert

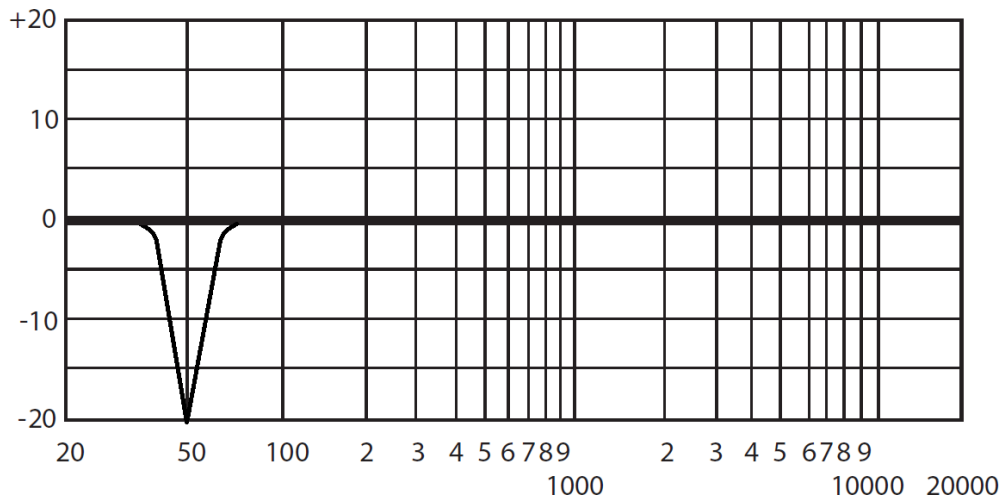
Question Number	Answer	Mark
3(c)	One mark is awarded for each point to a maximum of three marks, with a further mark for an explanation of each of the three points. Answers might include: <ul style="list-style-type: none"> • More tracks/mics (1) so that each drum kit element has its own track or multiple tracks and be processed, panned or balanced individually/bouncing not required. (1) • Kick drums have more low frequencies (1) so sound more sub-bass/as a result of miking separately (1) • <u>Stereo</u> overheads more common (1) to give a picture of the full kit/good left-right separation (1). • More drum-specific (tailored response) mics available/kick drum mics (1) to pick up most useful frequency ranges without needing EQ (1). • <u>Stereo</u> room mics (1) to give a wider natural reverb (1). • Condenser mics most common on overheads/cymbals (opposed to ribbons) (1) giving greater high frequency detail. (1) • Mics tend to be placed closer (1) giving proximity effect/less natural reverb. (1) • Drums tend to be recorded in a dry/less reverberant space (1) to give greater control in editing and mixing / meaning artificial reverb is added later. (1) • Digital recording (1) gives less noise/none of the warm saturation of analogue tape medium. (1) • DAW production (1) allows for very detailed rhythmic editing/audio quantise. (1) • Heavier/more widespread use of compression (1) to limit dynamic range/shape amplitude envelope (transient shaping). (1) • Typically recorded to a click/not at the same time as other instruments, (1) so less spill/acoustic baffles not required. (1) • Overdubbing cymbals/use of MIDI triggers/drum replacement (1) to get a better balance in heavy music/to replace and add to the acoustic drum sounds with samples/for better isolation without spill/more straightforward quantisation (1). Accept other reasonable responses	6 Expert

4. Peggy Seeger: *The House Carpenter*

Question Number	Answer	Mark
4(a)	Any two of: <ul style="list-style-type: none"> • Mains / earth / electrical interference • Traffic noise / spill from outside the building / noise from musicians • <u>Tape</u> hiss (on original recording medium) • Dirty tape heads • Drop-outs (when transferring mono recording to a stereo tape for mastering/remastering) • Microphone being knocked Accept: feet tapping	2 Expert

Question Number	Answer	Mark
4(b)	<ul style="list-style-type: none"> • 196 (Hz) 	1 Clerical

Question Number	Answer	Mark
4(c)	<ul style="list-style-type: none"> • High pass filter curve drawn (1) • Curve steep and reaches the -20dB line at 40Hz or higher (1) • Curve leaves x-axis between 50-200Hz (1) <p>Max 1 if there are additional boosts anywhere on graph AND/OR additional cuts at a higher frequency than the filter curve.</p> <p>OR</p>	3 Expert



- High Q notch filter drawn that has similar or narrower band than that shown above (1)
- Cut reaches the -20dB line (1)
- Centre frequency is between 40-150Hz (1)

Ignore additional cuts below the frequency of the notch. Max 1 if additional boosts anywhere on graph AND/OR additional cuts at a higher frequency than the notch.

Question Number	Answer	Mark
4(d)	<p>One mark is awarded for each point to a maximum of two marks, with a further mark for an explanation of each of the two points.</p> <p>Answers might include:</p> <ul style="list-style-type: none"> • Positioning instruments (1) so that the loudest ones were furthest from the microphone(s) and vice versa. (1) • Moving closer to microphone(s) for solos/further away for accompanying (1) to give a level boost for solos (1) • Making physical modifications to instruments/musicians having to change their performance (1) e.g. opening lid/raising the height of an upright piano or a singer belting out the song/adjusting volume of guitar/bass guitar amplifiers (1) • Use of screens/absorbers (1) so that louder instruments didn't cause larger acoustic spaces to be excited. (1) • Use of multiple microphones (once available) (1) so that the balance between these could be manipulated using a mixer. (1) • Spot microphone on quieter instruments (e.g. double bass) (1) so that the low frequencies are present in the mix (1) • Making best use of microphone polar patterns (1) e.g. singers moving close to a directional microphone for proximity effect/sound sources placed on either side of a figure of eight microphone/avoiding spill by placing dominant instruments at the null point on polar pattern. (1) <p>Accept other reasonable responses</p>	<p>4</p> <p>Expert</p>

5. Ed Sheeran: *Shape of You* (2017) and

Ed Sheeran & NOTD: *Shape of You NOTD Remix* (2017)

Question Number	Answer	Mark																		
5	<p>A03 (5 marks)/A04 (10 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:</p> <ul style="list-style-type: none"> • Level 1 A03 performance: 1 mark • Level 2 A03 performance: 2 marks • Level 3 A03 performance: 3 marks • Level 4 A03 performance: 4 marks • Level 5 A03 performance: 5 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="292 869 1313 2065"> <thead> <tr> <th data-bbox="292 869 783 902">A03</th> <th data-bbox="791 869 1313 902">A04</th> </tr> </thead> <tbody> <tr> <td colspan="2" data-bbox="292 902 1313 947">Capture, performance & production approach:</td> </tr> <tr> <td data-bbox="292 947 783 1037"> <ul style="list-style-type: none"> • Original produced in a DAW • Original has more microphone capture </td> <td data-bbox="791 947 1313 1037"> <ul style="list-style-type: none"> • Gives a live, human feel • A focus on acoustic sound • Commercial pop </td> </tr> <tr> <td data-bbox="292 1037 783 1328"> <ul style="list-style-type: none"> • Remix is a collage of samples • Produced on DAW • Remix has limited/no live capture • Additional sampled elements. • The remix has a wider range of effects processes </td> <td data-bbox="791 1037 1313 1328"> <ul style="list-style-type: none"> • Samples are taken from original track • Keyboard-triggered samples (rather than microphone-captured lines) • Layered and rhythmic • Dance music piece • Sounds heavily processed • For dancing to in a club. </td> </tr> <tr> <td data-bbox="292 1328 783 1585"> <ul style="list-style-type: none"> • Chorus is the highpoint in original • Remix uses the chorus as a build </td> <td data-bbox="791 1328 1313 1585"> <ul style="list-style-type: none"> • Original focuses on the song narrative • Remix more dependent on hooks taken from the vocal • Remix has thicker textured instrumental • Euphoric dance music build/rhythms in remix </td> </tr> <tr> <td colspan="2" data-bbox="292 1585 1313 1630">Sequencing, sampling & synthesis:</td> </tr> <tr> <td data-bbox="292 1630 783 1753"> <ul style="list-style-type: none"> • Limited additional samples used in original • The drums have been sequenced </td> <td data-bbox="791 1630 1313 1753"> <ul style="list-style-type: none"> • Sounds more like a continuous performance that connects with the listener • Tight rhythm/quantised </td> </tr> <tr> <td data-bbox="292 1753 783 1977"> <ul style="list-style-type: none"> • Remix has additional drum layers, pads, atmospheric textures, reverse cymbals and guitars • Remix has obvious looping </td> <td data-bbox="791 1753 1313 1977"> <ul style="list-style-type: none"> • More variations/build in texture suitable for club dance music • Dramatic contrasts in dynamics • Parts of the lead vocal are cut and repeated • Repeated sections from the lead vocal create a hook </td> </tr> <tr> <td data-bbox="292 1977 783 2065"> <ul style="list-style-type: none"> • Original has less prominent use of synthesis • Remix has slow attack pads </td> <td data-bbox="791 1977 1313 2065"> <ul style="list-style-type: none"> • Remix – more obvious synthesis • Adds to feeling of motion/build </td> </tr> </tbody> </table>	A03	A04	Capture, performance & production approach:		<ul style="list-style-type: none"> • Original produced in a DAW • Original has more microphone capture 	<ul style="list-style-type: none"> • Gives a live, human feel • A focus on acoustic sound • Commercial pop 	<ul style="list-style-type: none"> • Remix is a collage of samples • Produced on DAW • Remix has limited/no live capture • Additional sampled elements. • The remix has a wider range of effects processes 	<ul style="list-style-type: none"> • Samples are taken from original track • Keyboard-triggered samples (rather than microphone-captured lines) • Layered and rhythmic • Dance music piece • Sounds heavily processed • For dancing to in a club. 	<ul style="list-style-type: none"> • Chorus is the highpoint in original • Remix uses the chorus as a build 	<ul style="list-style-type: none"> • Original focuses on the song narrative • Remix more dependent on hooks taken from the vocal • Remix has thicker textured instrumental • Euphoric dance music build/rhythms in remix 	Sequencing, sampling & synthesis:		<ul style="list-style-type: none"> • Limited additional samples used in original • The drums have been sequenced 	<ul style="list-style-type: none"> • Sounds more like a continuous performance that connects with the listener • Tight rhythm/quantised 	<ul style="list-style-type: none"> • Remix has additional drum layers, pads, atmospheric textures, reverse cymbals and guitars • Remix has obvious looping 	<ul style="list-style-type: none"> • More variations/build in texture suitable for club dance music • Dramatic contrasts in dynamics • Parts of the lead vocal are cut and repeated • Repeated sections from the lead vocal create a hook 	<ul style="list-style-type: none"> • Original has less prominent use of synthesis • Remix has slow attack pads 	<ul style="list-style-type: none"> • Remix – more obvious synthesis • Adds to feeling of motion/build 	15 Expert
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	<ul style="list-style-type: none"> • Original has repeating syncopated rhythm in verse • Original has additional drum layers in chorus • Intricate hi-hat patterns and snare rolls in remix 	<ul style="list-style-type: none"> • Subtle build of texture into chorus on original • Definite sense of a dramatic build and 'drop' leading up to the chorus in remix • Remix is more rhythmically complex • Remix has accented backbeat in remix after drop • Progressive looping of smaller sections of the beat/sample to give a halving of rhythm 	
Mixing & processing:			
	<ul style="list-style-type: none"> • Backing vocals very prominent (loud) in original 	<ul style="list-style-type: none"> • Quieter/incomplete backing vocal lines in remix leave more space in stereo field for other layers 	
	<ul style="list-style-type: none"> • Subtle, room/plate reverb is most noticeable effect in original • Remix features timed delay and pitch processing. 	<ul style="list-style-type: none"> • Original has a more 'intimate' sound • No delay audible in original • Delay on remix gives a sense of space/motion and reinforces the rhythm • Pitch processing sends the voice into a higher register that sounds synthetic/comical • Pitch/delay processing contrasts with original vocal line 	
	<ul style="list-style-type: none"> • Original has mostly subtle/natural EQ • Backing vocals in original have high frequency boosts/low frequency thinning • Remix uses low pass filtering 	<ul style="list-style-type: none"> • Brightness of backing vocals in original helps to differentiate them from each other • Remix backing vocals are less bright • Filtering makes the delayed vocal hook in remix intro sound more distant/ambient • Filter sweeps used for motion effects at transitions in the remix • No obvious filtering effects in original 	
	<ul style="list-style-type: none"> • Mix compression on original • Backing vocals are heavily compressed on original 	<ul style="list-style-type: none"> • Original has good impact/is a loud mix whilst retaining some natural dynamics/achieves a gentle build • Remix has a pumping, high average level/low dynamic range dance music sound • Remix appears to have side-chaining 	

Level	Mark	Descriptor
	0	No rewardable material.
Level 1	1- 3	<ul style="list-style-type: none"> • Demonstrates limited knowledge and understanding of production techniques used, some of which may be inaccurate or irrelevant (AO3). • Gives limited analysis and deconstruction of production techniques used with little attempt at chains of reasoning (AO4). • Makes limited comparisons between the two recordings, with little or no conclusion (AO4).
Level 2	4- 6	<ul style="list-style-type: none"> • Demonstrates some knowledge and understanding of production techniques used, which is occasionally relevant but may include some inaccuracies (AO3). • Gives some analysis and deconstruction of production techniques used with simplistic chains of reasoning (AO4). • Makes some comparisons between the two recordings, reaching unsupported conclusions (AO4).
Level 3	7-9	<ul style="list-style-type: none"> • Demonstrates clear knowledge and understanding of production techniques used, which is mostly relevant and accurate (AO3). • Gives clear analysis and deconstruction of production techniques used, with competent chains of reasoning (AO4). • Makes clear comparisons between the two recordings, reaching partially supported conclusions (AO4).
Level 4	10-12	<ul style="list-style-type: none"> • Demonstrates detailed knowledge and understanding of production techniques used, which is relevant and accurate (AO3). • Gives detailed and accurate analysis and deconstruction of production techniques used, with logical chains of reasoning on occasion (AO4). • Makes detailed comparisons between the two recordings, reaching well supported conclusions (AO4).
Level 5	13- 15	<ul style="list-style-type: none"> • Demonstrates sophisticated and accurate knowledge of production techniques used throughout (AO3). • Gives sophisticated and accurate analysis and deconstruction of production techniques used, with logical chains of reasoning throughout (AO4). • Makes detailed comparisons between the two recordings, reaching sophisticated conclusions (AO4).

6. Portishead: *Glory Box*

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<ul style="list-style-type: none"> • Overdrive on drums 	<ul style="list-style-type: none"> • Affects EQ/timbre 																			
<ul style="list-style-type: none"> • <u>Heavy compression on drums/bass at 04:17/end of song</u> 	<ul style="list-style-type: none"> • High ratio • Pumping • Adds sustain • The compression is so heavy, it sounds like distortion 																			
<ul style="list-style-type: none"> • Bit depth/digital distortion (bit-crusher) seems to be present on 	<ul style="list-style-type: none"> • Warm/fuzzy artefacts as sounds die away/release • Limits dynamic range 																			

	<p><u>later drum/bass sections</u></p>	<ul style="list-style-type: none"> • The sampling hardware may have been set to a lower bit-depth due to limited memory or to emulate the sound of earlier digital recording/sampling hardware 	
	<ul style="list-style-type: none"> • Bass likely uses valve amp / compression 	<ul style="list-style-type: none"> • Warm soft clipping 	
<p>A04 – impact of the technology</p> <ul style="list-style-type: none"> • Distortion offers a range of textural and lo-fi effects. • Harder-edged/gritty music production. • Distortion was initially avoided in the signal chain wherever possible, e.g. by carefully monitoring levels being produced/recorded. • Later, it became a desired sound/effect. • With valve/tube technology in widespread use, engineers enjoyed subtle clipping when valves overloaded. • Valve/tube clipping popular on guitar, bass guitar, electric piano and electric organ. • When valves became dislodged in amps, this was discovered to produce a harder-edged distorted sound on guitar. • The overdriven guitar sound was born out of this broken equipment. • Other modifications were made to amplifiers including cutting speaker cones to produce distortion. • Tape delay units, pushed into distortion with high levels of feedback created a warm, saturated sound. • Tape delay was popular in psychedelic music, reggae and sci-fi soundtracks. • With large format multitrack recording, engineers and producers experimented with pushing levels to tape into distortion. • Tape overload added warmth and a subtle form of compression to drums, bass guitar etc. • Analogue mixer pre-amps were also overloaded to create distortion • Analogue mixer overload used widely in 60/70s rock music. • Transistors/diodes popularised fuzz effects. • This gives fuzz/hard clipping. • Non-harmonic/inter-modulation distortion/IMD • External effects pedals in rock and metal music (e.g. Boss). • Digital/convolution technology made way for amplifier simulators in the form of hardware units and DAW plug-ins. • Line 6 Pod, AmpliTube etc are examples of this technology. • This gave a convenient/quick/inexpensive way to layer-up distorted sounds. • Amp modelling gives a much wider number of distortion/amp combinations. • In the DAW era (late 90s onwards), sounds other than the guitar were regularly featuring distortion. • Fuzz bass guitar and lead vocal were the most common. • In the same era, bit-depth distortion (bit-crushing) became popular. • Creates lo-fi drum sounds e.g. in dance/urban music. • Producers wanted to emulate the sound of earlier samplers and computer game music that used a lower bit depth. • E.g. 8-/12-bits. • Convolution/plug-ins have made it possible to emulate the soft clipping associated with analogue studio equipment – e.g. tape machines, mixers and valve pre-amps. • The use of such processes in commercial music is in part a reaction to the perceived ‘clinical’ sound of digital recording. • Analogue summing during mixing/mastering. 			

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). • Applies limited analysis and deconstruction of production techniques/technology used in the recording with little attempt at chains of reasoning (AO4). • Makes limited connections between the production techniques/technology used in the recording and their wider impact (AO4). • Makes limited evaluative and/or critical judgements about the wider impact of the production techniques/ technology used in the recording (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). • Applies some analysis and deconstruction of production techniques/ technology used in the recording, with simplistic chains of reasoning (AO4). • Makes some connections between the production techniques/technology used in the recording and their wider impact (AO4). • Makes some evaluative and/or critical judgements about the wider impact of the production techniques/ technology used in the recording (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). • Applies clear analysis and deconstruction of production techniques/ technology used in the recording, which is mostly detailed, with competent chains of reasoning (AO4). • Makes valid connections between the production techniques/technology used in the recording and their wider impact (AO4). • Makes clear evaluative and critical judgements about the wider impact of the production techniques/ technology used in the recording (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). • Applies detailed and accurate analysis and deconstruction of product ion techniques/technology used in the recording, with logical chains of reasoning on occasion (AO4). • Makes detailed and valid connections between the production techniques/technology used in the recording and their wider impact (AO4). • Makes detailed and valid evaluative and critical judgements about the wider impact of the production techniques/technology used in the recording (AO4).

Level	Mark	Descriptor
Level 5	17-20	<ul style="list-style-type: none">• Demonstrates sophisticated and accurate knowledge and understanding of production techniques/technology used throughout (A03).• Applies sophisticated and accurate analysis and deconstruction of production techniques/technology used in the recording and logical chains of reasoning throughout (A04).• Makes sophisticated and valid connections between the production techniques/technology used in the recording and their wider impact (A04).• Makes sophisticated and valid evaluative and critical judgements about the wider impact of the production techniques/ technology used in the recording (A04).