Mark Scheme (Results)

Summer 2022

Pearson Edexcel GCE
In Music Technology (9MT0)
Paper 3 Listening and analysing

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Summer 2022
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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.

1. Grace Jones: *Crush* (1986)

Question Number	Answer	Mark
1 (a) **TYPE 2**	 Arpeggiated bass Synth (0:00-0:02)  Claps (0:08-0:22)  Hi-hats (0:03-0:22)	**(3)**

Question Number	Answer	Mark
1 (b) **TYPE 4**	**D** • A is incorrect because there is only a single repeat • B is incorrect because there is a single repeat that doesn't pan. • C is incorrect as it does not have a very short delay time with high feedback. • D is correct as there is a single repeat audible shortly after the dry signal.	**(1)**

Question Number	Answer	Mark
1 (c) **TYPE 1**	Any two of: • Distorted • Mid band EQ boost/bright EQ/bright tone • Chorus/flange/phaser/modulation • Reverb/delay • Gated/short notes • Panned (near) centre • Transition/motion effects/fills • Pitch bends/pitch drops/slides/whammy bar/dive-bomb/allow glissando • Harmonics	**(2)**

Question Number	Answer	Mark
1 (d) **TYPE 1**	• MIDI/CV • Drum machines/samplers/samples/hardware sequencer • Quantised/mechanical/tight rhythms • 16ths/16-step/step entry • Regular patterns/repeating patterns/loops • Arpeggiator • Fixed velocity • Velocity shaping/accents <u>on hi-hats</u>	**(4)**

2. The Rolling Stones: *2000 Light Years from Home* (1967)

Question Number	Answer	Mark
2 (a) **TYPE 3**	• Mellotron • Chamberlin Accept inaccurate spellings	**(1)**

Question Number	Answer	Mark
2b (i) **TYPE 4**	**A** • A is correct as this would have been the type of synthesis in use in 1967 • B is incorrect as digital synthesis wasn't used available • C is incorrect as the sound is generated from an oscillator • D is incorrect as the sound does not include speech synthesis	**(1)**

Question Number	Answer	Mark
2b (ii) **TYPE 4**	**B** • A is incorrect as it would be a more harmonically rich sound • B is correct as a pure tone without harmonics is heard • C is incorrect as it would be a more harmonically rich sound • D is incorrect as it would be a more harmonically rich sound	**(1)**

Question Number	Answer	Mark
2b (iii) **TYPE 1**	Any one of: • Adjusting the oscillator's pitch control/frequency control/VCO knob/coarse tuning • Modulated by a <u>randomised</u> waveform/<u>random</u> LFO • Portamento/glide • Changing cut-off on <u>resonant</u> filter/self-oscillation • Allow <u>octave/multiple octave/wide range</u> pitch bend	**(1)**

Question Number	Answer	Mark
2 (c) **TYPE 1**	Any three of: • Using tape • Reverse the tape direction (not 'play backwards'/'play in reverse') • Record (part) whilst tape is playing backwards • The tape is finally played back in original direction/speed • Tape speed might also be changed • Track numbering will be reversed when the tape is reversed • Player may need to work out how the part will appear once tape plays back in the correct direction • Play long notes/let note die away fully (to create swells/fades) OR • Using tape • Cut/splice/turn tape around (not 'play backwards'/'play in reverse') • Re-record reversed part (on master/another tape machine) • Tape speed might also be changed • Player may need to work out how the part will appear once tape plays back in the correct direction • Play long notes/let note die away fully (to create swells/fades)	**(3)**

Question Number	Answer	Mark
2d (i) **TYPE 1**	Uncontrolled peaks/clipping/too loud/wide dynamic range/uneven dynamics	**(1)**

<table>
<tr><th>Question Number</th><th>Answer</th><th>Mark</th></tr>
<tr><td>2d (ii)
TYPE 1</td><td>One mark is awarded for the correct point, with a further mark for an explanation.

AO3 point must be correct to award AO4 explanation
<table>
<tr><th>Point (AO3)</th><th>Explanation (AO4)</th></tr>
<tr><td>• Use compressor/ Limiter</td><td>• Reduces peaks/avoids clipping/stops signal exceeding a set level/use fast attack time/use high ratio/use key or sidechain so that compression is frequency-specific</td></tr>
<tr><td>• Volume automation</td><td>• Reduces the peaks/reduce by a large amount/draw in changes just before peaks /apply to individual track(s)/apply to specific section</td></tr>
<tr><td>• Apply manual gain reduction to snare hits
• Transient shaper
• Multi-band compressor/limiter
• Copy/paste from a similar section in the song</td><td>• Reduces the peaks/reduce by a large amount/apply to specific section
• Reduce attack/punch control/softens transients
• Focus in on snare frequency range/stops it sounding too squashed/compresses high frequencies more gently (and vice versa)
• Forms a patch/use crossfades to disguise join/duplicate all drum tracks to avoid phase issues</td></tr>
</table></td><td>(1)</td></tr>
</table>

3. Blink-182: *Bored to Death* (2016)

Question Number	Answer	Mark
3 (a) **TYPE 2**	<table><tr><td>Rate in Hz</td><td>Accept any value between 0.1-0.4 (1)</td></tr><tr><td>Feedback %</td><td>Accept any value between 20-60(%) (1)</td></tr></table> If candidate provides a range, assess the mid-point	**(2)**

Question Number	Answer	Mark
3 (b) **TYPE 1**	Any two of: • Stereo/panned • Close mics added/more mics/room mics reduced • Wider frequency range/more HF/brighter/more LF/more bass/HPF removed/LPF removed/BPF removed • Higher volume level • Drier/less reverb/artificial/small reverb added • More compression/transient shaping • Gating Accept opposites for introduction if clearly identified	**(2)**

Question Number	Answer	Mark
3 (c) **TYPE 2**	• Cut/thinned/high pass/HPF Allow a negative (dB) value	**(1)**

Question Number	Answer	Mark
3 (d) **TYPE 2**	• Band pass/BPF/passed through small speaker/speaker simulator/telephone (EQ/distortion)	**(1)**

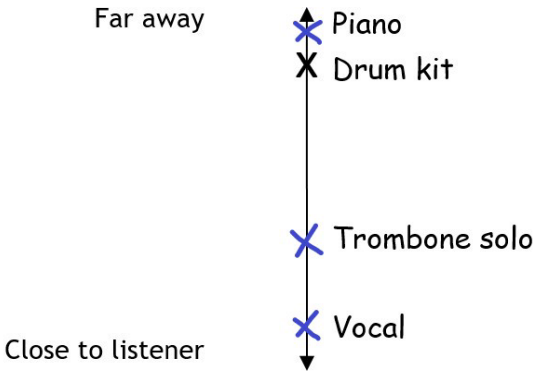
Question Number	Answer	Mark
3 (e) **TYPE 1**	Any two of: • Jack/TS/unbalanced cable from guitar • Use DI (box)/preamp • Select instrument/Hi-Z level on DI box • Use instrument/Hi-Z/high impedance input on audio interface/use a guitar-specific audio interface • Balanced/XLR lead from DI to interface/mixer • Ensure DI has power if required e.g. battery/phantom • Turn off pad • Adjust the gain • Insert amp simulator effect in DAW/use hardware amp simulator or pedals between guitar and audio interface/impulse response/convolution • Turn on software monitoring/turn off direct monitoring • Use small buffer sizes to avoid latency • Preserves clean signal/possibility to change the sound once recorded	**(2)**

<table>
<tr><th>Question Number</th><th>Answer</th><th>Mark</th></tr>
<tr><td>3 (f)
TYPE 1</td><td>One mark is awarded for the correct point, with a further mark for an explanation.

AO3 point must be correct to award AO4 explanation
<table>
<tr><th>Point (AO3)</th><th>Explanation (AO4)</th></tr>
<tr><td>• Compressor/ limiter/ maximiser/ dynamic EQ</td><td>• Reduces transients/peaks
• Average level can be increased <u>without distortion</u>
• Brickwall/ceiling
• High threshold
• High ratio</td></tr>
<tr><td>• Multi-band compression</td><td>• <u>High</u> make-up/input gain
• Ceiling set to 0dB (or just below)
• Varying thresholds/ratios for different frequency bands/low frequencies compressed harder (and vice versa)</td></tr>
<tr><td>• Mid-side/MS compression</td><td>• Can compress centre elements more heavily</td></tr>
</table></td><td>(2)</td></tr>
</table>

4. Sarah Vaughan: *Can't Get Out of This Mood* (1950)

Question Number	Answer	Mark
4 (a) **TYPE 2**	Jazz/swing	**(1)**

Question Number	Answer	Mark
4 (b) **TYPE 1**	 • One mark per instrument: • Piano– must be in the top third of the range • Vocal – must be in the bottom third of range • Trombone – behind vocal in the lower half of range	**(3)**

Question Number	Answer	Mark
4 (c) **TYPE 1**	One mark is awarded for each point with a further mark for an accompanying explanation. AO3 point must be correct to award AO4 explanation	

Point (AO3)	**Explanation (AO4)**
• EQ (accept name of EQ type/shape)	• There are bright elements in the recording/LPF to remove hiss/high shelf cut to remove hiss/full bass/compensates for limited frequency range/to extend frequency range/HPF to remove

		rumble/notch filter to remove hum	
	• Noise reduction/de-clip	• No hiss/no crackle/no hum/no distortion/noise reduction artefacts audible	
	• Noise gate	• Cleans up start & end/long release	
	• Compression/ limiting/ maximiser	• High perceived loudness • Reduces transients/peaks • Brickwall/ceiling • High threshold • High ratio • <u>High</u> make-up/input gain • Ceiling set to 0dB (or just below)	
	• Start trimmed/end trimmed/ fades	• Very short gaps at start and end/no unwanted noise audible at start and end/quick fade-out/maintains reverb tail	**(2)**

<table>
<tr><th>Question Number</th><th>Answer</th><th>Mark</th></tr>
<tr><td>4 (d)
TYPE 1</td><td>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.

AO3 point must be correct to award AO4 explanation. Don’t credit marks in italics twice.

Answers might include:
<table>
<tr><th>Point (AO3)</th><th>Explanation (AO4)</th></tr>
<tr><td colspan="2">Saxophone</td></tr>
<tr><td>• Key noise</td><td>• Point/place mic away from keys/clean pads</td></tr>
<tr><td>• Breath noise</td><td>• Point mic away from player’s mouth</td></tr>
<tr><td>• Wide frequency response</td><td>• Use a condenser mic/dynamic or ribbon mic with a wide frequency response</td></tr>
<tr><td>• Capturing a balanced sound across the full range/unwanted resonances</td><td>• Don’t mic directly on bell/move mic further away</td></tr>
<tr><td>• Wide dynamic range</td><td>• Use condenser mic/mic with fast transient response</td></tr>
<tr><td>• Player moving on and off axis/player moving around</td><td>• Place mic further away/use clip-on mic</td></tr>
<tr><td>• Loud/high SPL/clipping</td><td>• Use a dynamic mic/ pad/place mic slightly further away/place off-axis/reduce gain/use pad</td></tr>
<tr><td>• Too much proximity/low end build-up</td><td>• Place mic slightly further away/off</td></tr>
</table></td><td>(4)</td></tr>
</table>

	axis/use omni mic/use HPF
Trombone	
• Loud/high SPL/clipping	• Use a dynamic mic/ pad/place mic slightly further away/place off-axis/reduce gain/use pad
• Player moving on and off axis/player moving around	• Place mic further away/use clip-on mic
• Loud/harsh transients	• A large diaphragm mic might help smooth out transients/use mic with slower transient response OR • If these transients are required, use a mic with a fast transient response
• Wide frequency response	• Use a condenser mic/dynamic or ribbon mic with a wide frequency response
• Too much proximity/low end build-up	• Place mic slightly further away/off-axis/use omni mic/use HPF
• Valve/slide <u>noise</u>	• Point/place mic away from the thumb valve Use valve oil/grease
Accept other reasonable responses including valid mix/post-production solutions	

5. Pink Floyd: *Comfortably Numb* (1979) and **Scissor Sisters: *Comfortably Numb* (2004)**

<table>
<tr><th>Question Number</th><th>Answer</th><th>Mark</th></tr>
<tr><td>5
TYPE 1</td><td>
AO3 (5 marks)/AO4 (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 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
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 the following:
<table>
<tr><th>AO3</th><th>AO4</th></tr>
<tr><td colspan="2">Capture & production approach:</td></tr>
<tr><td>PF:
Analogue tape/analogue mixer/24-track
(Mainly) close mics/acoustic capture
Ambient miking of the orchestra
Relaxed tempo/slower
Limited backing vocals
Orchestral backing sits low in mix
</td><td>PF:
(Flattering) soft clipping/saturation
Live/human feel
Stereo mic combinations
Additional spot mics
Symphonic aspect/rich textures
Loose/hypnotic
(Space/symphonic) rock
Calm/less cluttered mix/focuses on the band
Orchestral instruments/strings/acoustic guitar used to thicken texture
Manual fade/no automation/retains the atmosphere
SC:</td></tr>
</table>
</td><td></td></tr>
</table>

	• Long fade out **SC:** • DAW/digital • Limited live instruments • Faster tempo • Louder drums • More regular/multiple backing vocals	• More synthetic/mechanical/ keyboard based • Automated effects • Disco/funk/glam/sounds like The Bee Gees/(club) dance • Designed to be danced to/loses hypnotic feel of the narrative • Hectic/busy texture	
	Sequencing, sampling & synthesis		
	Sequencing/sampling **SC:** • Quantised • Limited velocity shaping • Arpeggiator • Looping (guitar) • Sequenced/sampled drums • Reversing • Does not sample from the PF version • Uses MIDI	**SC:** • Tighter rhythms/mechanical • Lacks human feel • Audible loop-point • Creates a hook/memorable • Handy for DJ crossfade • Synthetic sounding • Wider variety of drum/percussion sounds • Riser/motion/transition	

	Synthesis	**SC:** • Arpeggiating synth • Laser blast	**PF:** • Less prominent synthesis than SC/no clearly discernible synth sounds **SC:** • Adds brightness/reinforces rhythm • 16th • Low pass filtered/changes in brightness • Resonant • Fast attack • Adds rhythmic interest	
	Mixing & processing:			
	Dynamics	**PF:** • Bass guitar tightly compressed • Natural vocal dynamics • Lead guitar/drum fills have more dynamic range • Less limiting on master/light mix compression **SC:** • Even vocal dynamics • Heavier limiting/mix compression	**PF:** • Consistent volume in mix • Not squashed/natural • More expression/impact/natural • Lower perceived volume • Wider dynamic range • Seems quiet by modern standards/might benefit from re-mastering **SC:** • Consistent volume in mix • Lots of make-up gain/high ratio • High ceiling/brickwall • Higher perceived loudness/average level • Narrow dynamic range [don't credit if opposite awarded for PF] • Suitable for dance music/radio play	

	EQ	**PF:** • LV thinned/bright • Stacked BVs on 'oww' very thin • Bass guitar/kick/floor toms thick/LF boost • Orchestra/overheads not too bright • Thinned acoustic guitar/HPF **SC:** • Bright drum EQ • Sub bass elements	**PF:** • High shelf <u>boost</u>/high pass • Helps vocal cut through • High pass • Avoids excessive proximity (with multiple voices) • Low shelf/LF band boost • More low end thump • High shelf <u>cut</u>/a result of ambient miking • High pass • Cuts through a busy mix/keeps out of the way of other instruments **SC:** • Clarity in mix • For playback systems with sub woofers	

	Delay & reverb	**PF:** • Rhythmic/tape/analogue delay on vocal • ADT on (entire) vocal/double-tracking • Stereo delay on guitar • Large reverbs **SC:** • Delay on drum fills • Some drum elements very dry • Heavy guitar reverb	**PF:** • Dotted (8th-note) rhythm • Mono • Only words at start of line repeated/used on key words • Repeats are filtered • 3-4 repeats/medium feedback • High send/wet level • Sense of space/creates syncopated groove/fill in texture of sparse vocal phrases • Short delay times • No feedback • Ping pong/opposite panning • Thickens texture • Natural/room/ambient miking (linked to orchestral instruments or drum overheads) • Plate • 1.5-3 seconds • Thickens texture/spacey **SC:** • More vocal words are processed with the delay than PF • Hectic/incessant/repetitive • Shorter delay time than PF • Medium feedback • Panned repeats • Filtered • Richer texture/more chaotic • Disorientating/adds intensity • Retains focus in club playback/contrasts with delayed vocals • Dense/spring/mid-heavy	

	Pan/stereo field	**PF:** • (Main) BV panned central/same as LV • BV layers on 'oww' hard panned • Orchestral instruments panned across entire stereo field **SC:** • Separated/opposed panning of drum elements/more panning • Many elements close to centre	**PF:** • Unified vocal texture • Creative effect/in opposition with orchestral instruments • Audience perspective/compelling stereo spread/more separation **SC:** • Less realistic than stereo overheads on drum kit/more separation • Good mono compatibility (e.g. in clubs/for broadcast)	
	Guitar effects	**PF:** • Overdrive on lead guitar/soft clipping • Wah pedal on solos **SC:** • Cleaner guitar	**PF:** • Valve/tube/solid state • Adds vocal-like expression • Gives a tonal boost **SC:** • Less distortion than PF/suitable for disco/funk	**(15)**

Level	Mark	Descriptor
	0	No rewardable material.
Level 1	1–3	• 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	• 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	• 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	• 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	• 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. Michael Penn: *Figment* (1997)

<table>
<tr><th>Question Number</th><th>Answer</th><th>Mark</th></tr>
<tr><td>6
TYPE 1</td><td colspan="2">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
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 the following.

For lines in italics, don’t credit twice (including opposites)</td><td>20</td></tr>
<tr><td></td><td>AO3 - song specific</td><td>AO4 - song specific</td><td></td></tr>
<tr><td></td><td>• Long reverb times/2-4 seconds/hall/cathedral (at start/end)
• High wet level/heavy reverb (at start/end)
• Digital/convolution/ DAW reverb
• Dull/mid heavy/low heavy reverbs</td><td>• Distant sounds/sense of space (not ‘ambience’)
• Dream-like/washy
• Reverb used for special effect
• Fills in the texture/gaps in phrases</td><td></td></tr>
<tr><td></td><td>• Noticeable pre-delay (at start/end)</td><td>• Perceivable gap between wet and dry signal (at times)</td><td></td></tr>
<tr><td></td><td>• Mono guitar reverbs (at start/end)
• Likely a spring reverb</td><td>• Reverbs are localised to match corresponding dry signal</td><td></td></tr>
<tr><td></td><td>• Resonant/mid-heavy/modulated guitar reverbs (at start/end)</td><td>• Murky/muddy
• Lo-fi quality</td><td></td></tr>
<tr><td></td><td>• Reverb levels vary dramatically</td><td>• Wet level automated/reverb bypassed/by putting parts on separate tracks
• Brings sounds very close to listener/into sharp focus</td><td></td></tr>
</table>

		• Intimate • 'Scene change' in song	
	• In loud parts of the song (1:39-2:50 and 3:45 onwards) rhythm guitar and vocals have short/moderate reverb • Fairly low send level • Prominent early reflections	• E.g. plate/spring/room • Helps elements of the mix sit together • More conventional use of reverb	
	• Natural/room/plate reverb on drums • Short/medium reverb time • Short pre-delay • Strong early reflections • Snare wetter than rest of kit	• Room reflections/ambient/ overhead mics • Live feel/gives impact/upfront • Bright reflections on cymbals/strong transients • Gives power/sustain to the snare	
	• Little/no/small reverb on acoustic guitar • Lead guitar dry	• Up-front sound • Ambience from a small room • Focused/cuts through mix	
	• Tambourine has lots of reverb/long reverb (in the middle of song)	• High wet level [don't credit twice] • Contrasts with other very dry instruments/moves it back in the mix	
	AO4 – evaluate methods used to create reverb **Natural reverb** • Pre-1950 [max. 1 for decades] • Earliest form of reverb/earliest recordings used natural reverb only/captures the room reflections • Captured at the time of recording • Can't easily be removed afterwards • Captures a unique reverb/sound of a specific studio • Reverb affected by distance/height of mics • Size of room affects reverb time/decay time • Size of the room affects pre-delay • Wall angles/room shape affect the reverb • Reflective surfaces give more/brighter reverb • Absorbent materials reduce reverb time/HF/dampen		

	• Increased reverb with omni mics • Stereo mic combinations • Still widely used for classical/jazz/drums • Settings not easily adjusted • Allow example of a recording that uses this reverb type **Chamber reverb** • Pre-1950 [max. 1 for decades] • Added after recording/parts captured dry or close-mic • Dry/recorded signal played in room via speaker • Stairwells/concrete basements/churches • Captures the room reflections • Captures a unique reverb/sound of a specific studio • Reverb affected by distance/height of mics • Size of room affects reverb time • Size of room affects pre-delay • Wall angles/room shape affect the reverb • Reflective surfaces give more/brighter reverb • Absorbent materials reduce reverb time/HF/dampen the reverb • Sound re-recorded/mic at opposite end of chamber • Wet sound blended with dry signal • Omnidirectional mics typically used • Stereo mic combinations • More control over level than natural reverb • Widely used on snare drum • Dense reverb tail • Settings not easily adjusted • Allow example of a recording that uses this reverb type **Plate/spring reverb** All: • Plate 1950s onwards/spring 1930s/1940s onwards [max. 1 for decades] • Added after recording/parts captured dry or close-mic • Brand/model of plate or spring e.g. EMT • Analogue/mechanical • Metal object vibrates	

	• Pick-ups/transducers/exciters • Dampeners/tension to adjust reverb time/characteristics • Mono/stereo later on • Allow example of a recording for each type (max 2) Plate: • Bright tone • Popular on vocals/drums • Short pre-delay • Found in professional studios/not in home studio Spring: • Used on guitar/organ/built into amps and organs/compact/home studio use • 'Twangy'/'boing'/slack sound • Mid-range heavy/lacks HF • Knocking springs for creative effect **Digital reverb** • Late 1970s/1980s onwards [max. 1 for decades] • Added after recording/parts captured dry or close-mic • Hardware/rack • Example e.g. Lexicon, Quadraverb, EMT 250 • Algorithms/series of digital delays/DDL/digital buffers • Room/hall/cathedral are common algorithms • Very exact settings possible/tempo sync/tap tempo • Stereo (typically) • Easily adjustable settings • Pre-delay (adjustable) • Reverb time/decay time (adjustable) • EQ/filtered reverb • Gated/reverse/non-linear reverbs • Gated reverb used on drums/short samples • Gated reverb adds power without making the sound too muddy/allow credit for a technical description • Presets • Live use • MIDI control • Allow example of recording that uses this reverb type **DAW/plug-ins** All:	

	Late 1990s/2000s onwards [max. 1 for decades] • Added after recording/parts captured dry or close-mic • Multiple instances/process unlimited tracks • Plug-in example e.g. Space Designer/Chromaverb • Plug-ins emulating hardware units • Algorithms/series of digital delays/DDL/digital buffers • Very exact settings possible/tempo sync/tap tempo • Easily adjustable settings • Stereo (typically • Pre-delay adjustable • Reverb time/decay time adjustable • EQ/filtered reverb • Gated/reverse/non-linear reverbs • Lots of parameters/max. 1 for additional parameters to above • Presets • Automation of parameters • Allow example of a recording that uses this reverb type Convolution: • Convolution (must be in context of era/decade) • Captures/re-creates acoustic spaces and hardware • CPU intensive/possible as computers got more powerful • Sound design/computer games use • Impulse responses • Pistol/balloon/noise bursts/sine sweep excitation signals • Omnidirectional mics typically used • Stereo mic combinations	

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 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	• 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	• 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	• Demonstrates detailed knowledge and understanding of production techniques/technology used, which are relevant and accurate (AO3) • Applies detailed and accurate analysis and deconstruction of production 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	• Demonstrates sophisticated and accurate knowledge and understanding of production techniques/technology used throughout (AO3). • Applies sophisticated and accurate analysis and deconstruction of production techniques/technology used in the recording and logical chains of reasoning throughout (AO4). • Makes sophisticated and valid connections between the production techniques/technology used in the recording and their wider impact (AO4). • Makes sophisticated and valid evaluative and critical judgements about the wider impact of the production techniques/technology used in the recording (AO4).

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