

AS LEVEL AND A LEVEL

The questions that follow are written to help you prepare for both levels of the course. Question numbers with an * next to them indicate that you need to be able to answer them for both AS and A Level. Those without an * are for A Level only.

SECTION A**Practice questions**

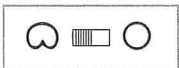
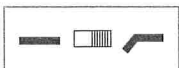

The questions on the next few pages are designed to help you prepare for Component 4. They will help you to apply your music technology skills, by discussing a diagram or other stimulus.

Try to complete the questions without reference to the mark scheme, then carefully review it afterwards to identify areas where you are less certain about the content or how to apply it. Then, make sure you know how to adapt or develop your answers to score full credit in an exam situation.

Question 1**Microphones**

The table below shows the position of the switches on a condenser microphone used to record a snare drum.

- a. Identify the function of each switch and explain why each setting is being used. (8)

Switch	Function	Justification
	(1)	(1)
	(1)	(2)
	(1)	(2)

- b. The engineer plans to use a second microphone underneath the snare drum. Identify an issue that they might encounter during mixing and suggest a possible solution. (2)

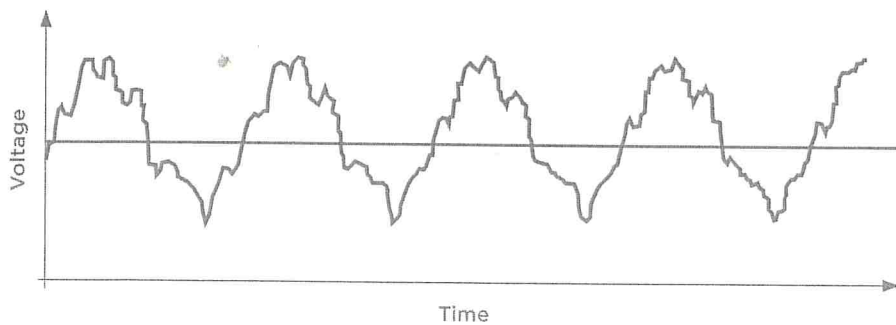
Total for A Level: 10 marks

Question 2

Capturing and editing sound

*a. The diagram below shows a section of a vocal waveform captured using a microphone.

i. By drawing a cross on the wave below, identify appropriate start and end points to create a smooth loop so this sound sustains if a key is held. (2)



ii. Identify a way of avoiding a click when looping a waveform. (1)

*b. Describe how compression could be used to increase a sample's sustain. (3)

c. A sound engineer wishes to capture a choir with a stereo microphone configuration. They have selected two possible microphone placements.

Compare the relative benefits and drawbacks of the following two microphone placements: (4)

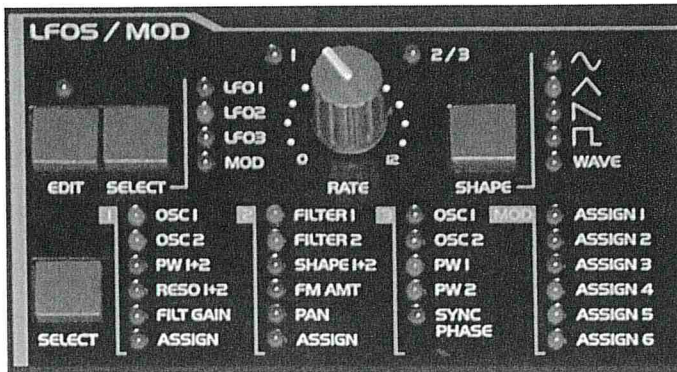
spaced pair/mid-side pair

Total for AS Level: 6 marks/Total for A Level: 10 marks

Question 3

Synthesis - LFOs

The diagram below shows the LFO section of a synthesiser.



- *a. State the meaning of the term LFO. (1)

- *b. Using LFO2, state how the synthesiser could be made to move from side to side of the stereo field. (1)

- *c. Vibrato is a modulation effect. Identify the aspect of the sound that is modulated to create vibrato. (1)

- d. State the function of the depth and rate controls when creating a vibrato effect.

*Rate: _____ (1)

Depth: _____ (1)

- e. Describe the difference in vibrato produced using square and sine wave shapes. (2)

- f. i. Identify the function of the 'PW 1+2' parameter on LFO1. (1)

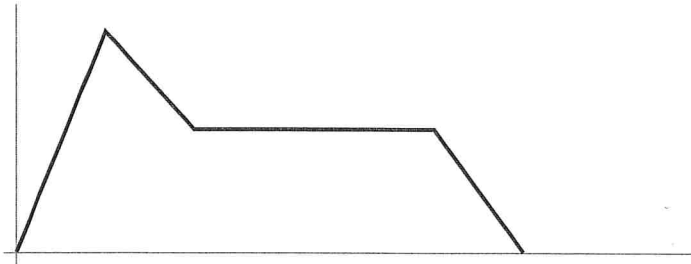
- ii. Draw a diagram to show the effect that altering this parameter would have on the waveform. (2)



Question 4**Synthesis - Envelopes**

***a.** The graph below shows the volume envelope of a sound produced on a synthesiser.

- i. Label the sections of the envelope (4)
- ii. Label the axes (2)
- iii. Label when the key is pressed and released (2)



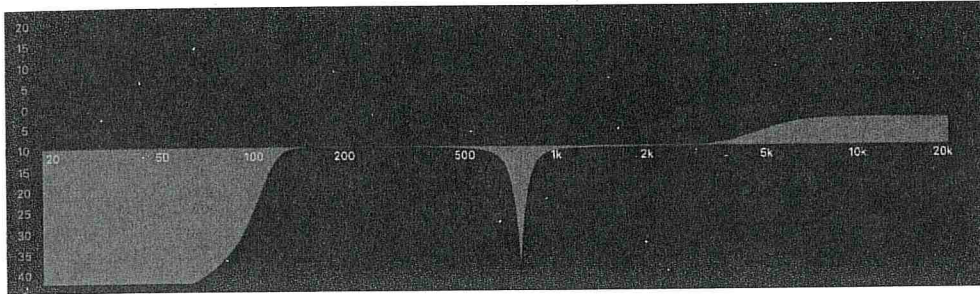
- b.** Describe the sound that would be created by the envelope drawn above when it is routed to the cut off frequency of a low pass filter on the synthesiser. (4)

Total for AS Level: 8 marks/Total for A Level: 12 marks

Question 5

Equalisation

The parametric EQ plugin below has been used to process a vocal part.



*a. Describe three benefits of using a parametric EQ over a graphic EQ. (3)

1. _____
2. _____
3. _____

*b. In the table below, explain why the three EQ changes shown above have been chosen to process a lead vocal part. (6)

Change	Justification
(1)	(1)
(1)	(1)
(1)	(1)

*c. Identify the centre frequency of the middle EQ change. (1)

Total for AS Level: 10 marks/Total for A Level: 10 marks

Question 6

Delay

The picture below shows a plugin that recreates the sound of a Roland Space Echo analogue tape delay.



***a.** Describe five benefits of using a software plugin over an analogue tape delay unit. (5)

1. _____
2. _____
3. _____
4. _____
5. _____

***b.** Aside from using tape, identify another way delay could be added to a recording in the 1970s. (1)

c. Fill in the table below to describe the function of each feature of the plugin. (4)

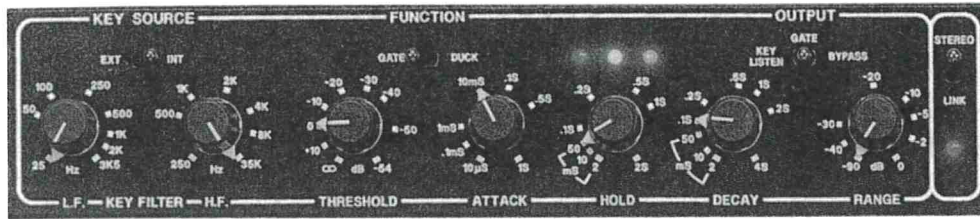
Plugin feature	Function
*Peak level	(1)
*Repeat rate	(1)
*Input vol	(1)
Intensity	(1)

Total for AS Level: 9 marks/Total for A Level: 10 marks

Question 7

Dynamics processing

The picture below shows a noise gate.



*a. Describe the function of a noise gate.

(2)

b. Describe the functions of the following noise gate controls.

(3)

Control	Function
*Threshold	(1)
Gate/duck	(1)
Attack	(1)

*c. Explain how you could use the controls on this gate to set up a synth part to play at the same time as the snare drum in a recording.

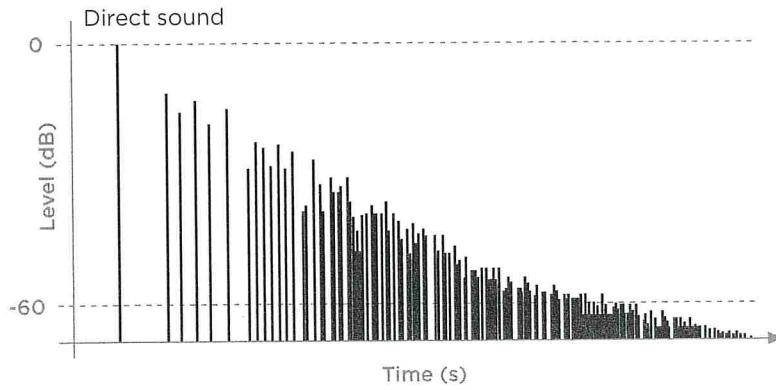
(5)

Total for AS Level: 8 marks/Total for A Level: 10 marks

Question 8

Reverb

A sound engineer is making a recording in a reflective space to create a convolution reverb.



a. Label the following parameters on the graph: (4)

RT_{60} pre delay early reflections reverb tail

b. Describe how the graph would look different when recording an impulse response in a less reflective room. (1)

c. State the meaning of the term 'convolution reverb'. (1)

d. Describe four benefits of using a convolution reverb over an echo chamber. (4)

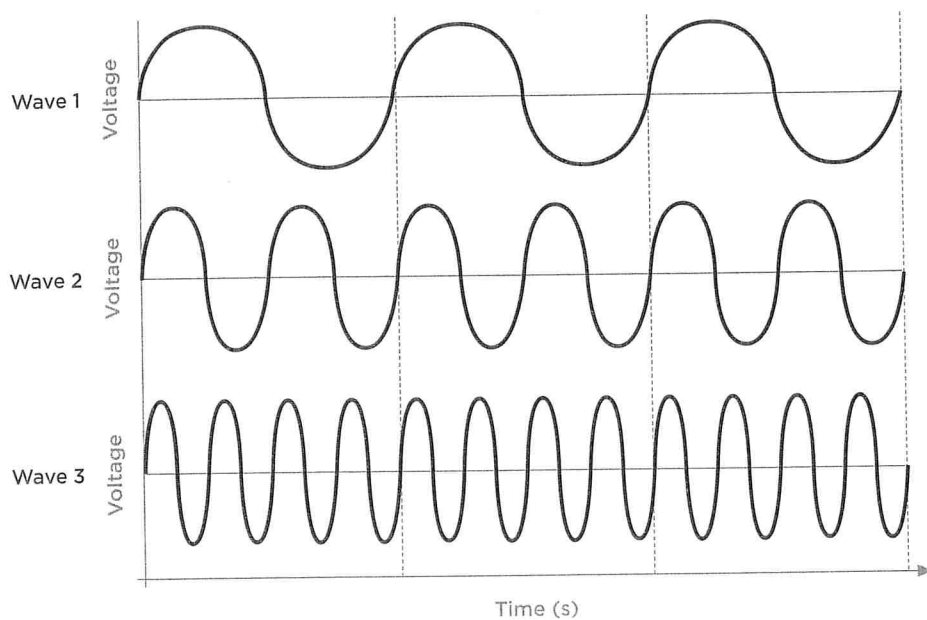
1. _____
2. _____
3. _____
4. _____

Total for A Level: 10 marks

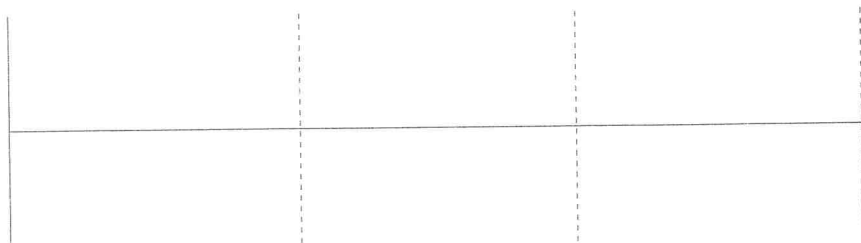
Question 9

Numeracy and calculations

The frequency of wave 1 below is 100Hz.



- a. Label the amplitude of wave 1. (1)
- b. Draw a wave that is 180 degrees out of phase with wave 1. (2)



- c. Identify what you would hear if you played wave 1 and the wave you have drawn in part (b) at the same time, at the same amplitude. (1)

- d. Calculate the period of wave 1. Show your working. (2)

period _____ s

e. Calculate the frequency of both waves below. Show your working.

i. Wave 2 (2)

frequency of wave 2 _____ Hz

ii. Wave 3 (2)

frequency of wave 3 _____ Hz

iii. Identify the musical relationship between waves 2 and 3. (1)

f. Calculate the frequency of a wave that is a perfect 5th above wave 1. Show your working. (2)

frequency _____ Hz

g. Calculate the frequency of the sixth harmonic of wave 1. Show your working. (2)

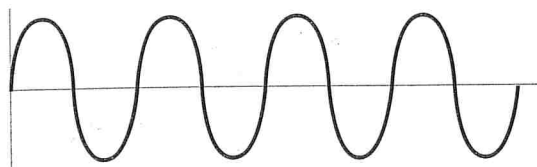
frequency _____ Hz

Total for A Level: 15 marks

Question 10

Analogue and digital

a. Below is an analogue waveform. Label the axes on the waveform graph below. (2)



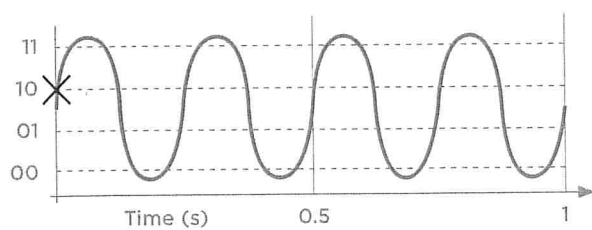
b. Give definitions for the following terms associated with digital audio.

Sample rate: _____ (1)

Bit depth: _____ (1)

c. The diagram below shows a small-scale digital sampling system.

i. Draw crosses on the diagram to indicate the digital samples that you would take if sampling the analogue wave at 2 bit/4Hz. The first one has been done for you. (3)



ii. Identify the binary values of the samples you have taken. (1)

iii. Given your answer to part i, evaluate why 4Hz is not a high enough sample rate to represent the analogue waveform and suggest a more appropriate value. (6)

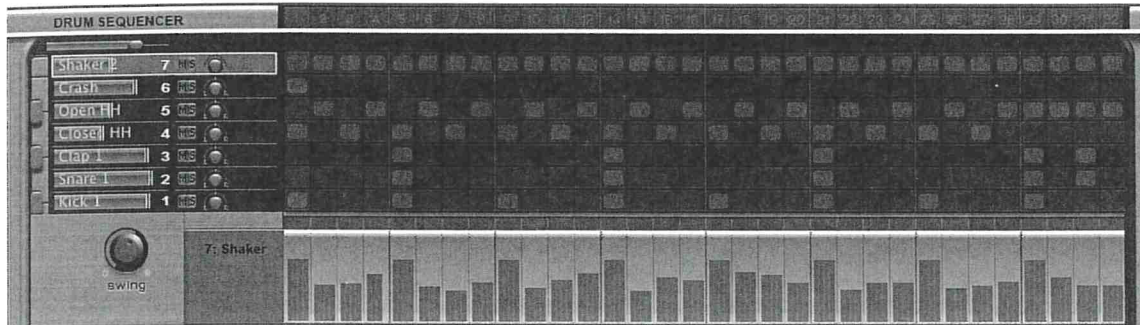
iv. The bit depth used in part i is also too low. Identify the issue that arises in digital sampling when the bit depth is so low, and suggest a more appropriate value. (2)

v. A student has decided to record the sound at 96kHz. Explain why this is a poor choice. (2)

Question 11

Drum machines and matrix editors

The matrix editor on the sequencer below shows a programmed drum beat. The tempo is 120 bpm and the pattern lasts for two bars of $\frac{4}{4}$.



*a. In the pattern shown above, describe what is being played by each part of the drum kit by filling in the table below. (5)

Part of Kit	Description
Kick	(1)
Snare/clap	(1)
Hi-hat	(1)
Shaker	(1)
Crash	(1)

*b. Identify two things that have been done to the drum beat to make it sound more realistic (2)

- _____
- _____

*c. If the drum kit had been inputted live as MIDI data, explain how the rhythms of the part could be tightened up while maintaining some sense of freedom. (3)

Total for AS Level: 10 marks/Total for A Level: 10 marks

