



Student Name: Malachi Haasen

# 2023 TRIAL HIGHER SCHOOL CERTIFICATE Industrial Technology | Multimedia

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## General Instructions

- Reading time – 5 minutes
- Working time – 1.5 hours
- Write using black pen
- Draw diagrams using pencil
- Monolingual and /or bilingual print dictionaries may be used
- Calculators approved by NESA may be used
- Write your name at the top of every page

34

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Total Marks:

40

85%

### Section I – 10 marks (pages 2-5)

- Attempt questions 1-10
- Allow about 20 minutes for this section
- See last page for the Multiple-Choice Answer Sheet

### Section II – 15 marks (pages 6-8)

- Attempt questions 11-14
- Allow about 30 minutes for this section

### Section III – 15 marks (pages 9-11)

- Attempt TWO questions from Questions 15
- Allow about 40 minutes for this section

10 marks

Attempt Questions 1–10

Allow about 20 minutes for this section

Use the multiple-choice answer sheet for Questions 1–10.

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**1) What does RTSP stand for?**

- (A) Real-time server protocol
- (B) Real-time server program
- (C) Real-time streaming protocol
- (D) Real-time streaming program

**2) Newer gaming consoles allow gamers to interact and control their avatar using their own body movements. Which type of animation technique is being used in this example?**

- (A) Rotoscoping
- (B) Stop Motion
- (C) Motion Capture
- (D) Cel-Based Animation

**3) An image is needed with a transparent background for a website. Which of the following images allow a transparent background?**

- (A) JPEG
- (B) PSD
- (C) BMP
- (D) GIF

**4) What is pagination used for?**

- (A) Removing irrelevant pages
- (B) Arranging the aligning of pages
- (C) Separating content into discrete pages
- (D) Setting the colour of the text used on pages

**5) You want to reduce the time it takes to render a 3D Animation. Which of the following options would achieve a reduction in render time?**

- (A) Decrease the size of the output resolution
- (B) Cut your footage into smaller files and then render all files simultaneously
- (C) Minimise the program window
- (D) Replace your solid-state drive with a USB drive

**6) Buffering is used when streaming video in order to**

- (A) load content in real time.
- (B) preload content.
- (C) interrupt an ISP connection.
- (D) cause slow connection speed.

7) What is an animation technique where objects are drawn on transparent sheets and placed over a static background?

- (A) Cel Animation
- (B) Behaviour Animation
- (C) Key Frame
- (D) Tweening

8) How many photos that are 5 Megabytes can be saved to a 16 Gigabyte USB flash drive?  
(Ignore any capacity losses due to formatting.)

- (A) 3
- (B) 3277
- (C) 80
- (D) 3276

$$\frac{(16 \times x)}{5} = y$$

$$x = \frac{5y}{16}$$

∴ B  
1024

9) What is the function of progressive JPEG technology?

- (A) To enhance the colours of the image
- (B) To increase the resolution of an image
- (C) To compress the file size of the image
- (D) To make the image appear to load faster

10) Which of the following statements is true of cascading style sheets?

- (A) A single CSS file can be applied to an entire website.
- (B) A separate sheet must be created for each page of a website
- (C) They are memory intensive and can be slow to load
- (D) They enhance the website's adaptability to be viewed in different browsers.

**Section II**

15 marks

Attempt Questions 11–14

Allow about 35 minutes for this section

Answer the questions in the spaces provided. These spaces provide guidance for the expected length of response.

**Question 11 (2 Marks)**

Describe TWO techniques that can be used to emphasise text in an electronic presentation.

(2)

Movement such as sliding into frame or Scale change.

Colour and Font choices and changes especially with respect to changing background colours.

**Question 12 (3 Marks)**

Calculate the time required (in seconds) to transfer a 550 MB (megabyte) file at 80 megabits per second. Include all working.

① Find size of file in megabits

$$550 \times 1024 = 563200 \text{ Kilobytes}$$

② divide by 80 to find time required in seconds

$$563200 \div 80 = 7040 \text{ seconds}$$

③ convert to more readable time format  
1 hour 57 minutes 20 seconds

(0)

**Question 13 (5 Marks)**

A library of real traffic sounds was recorded for use in the Learner Driver test application.

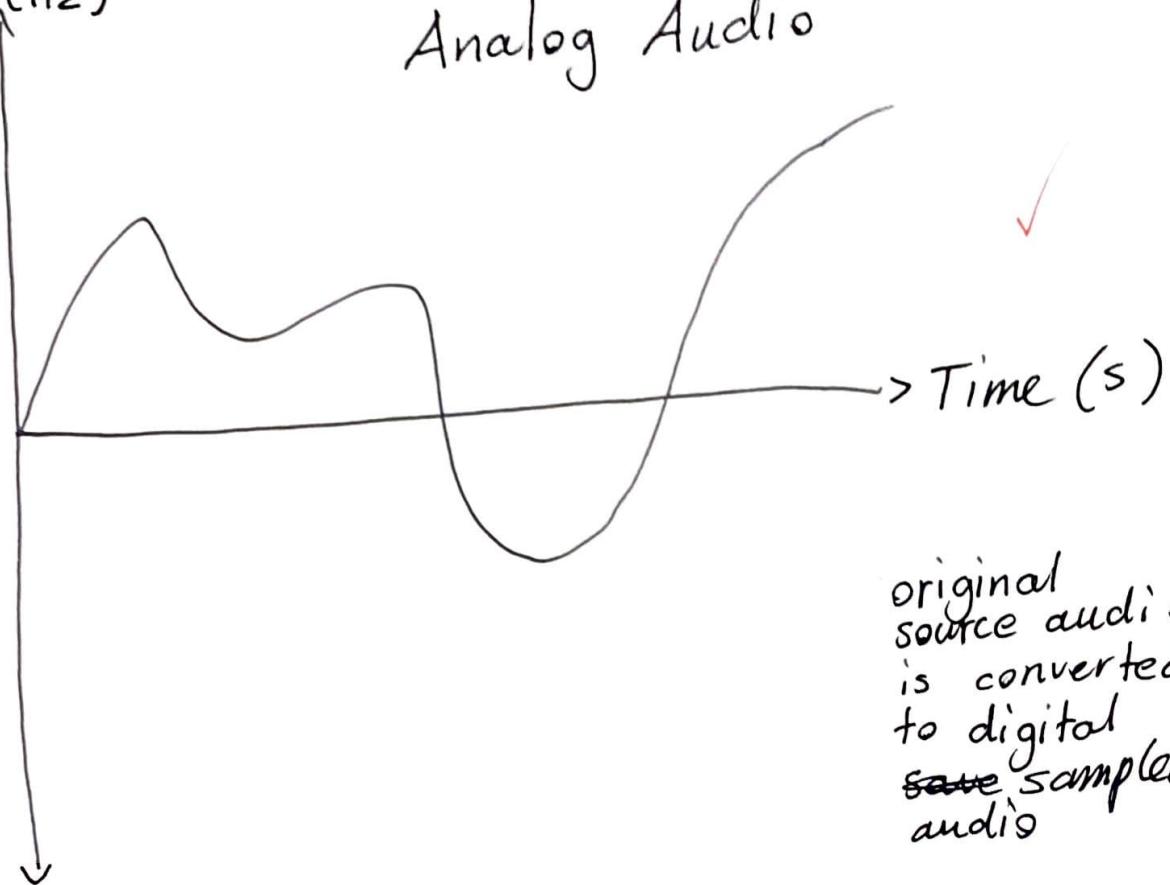
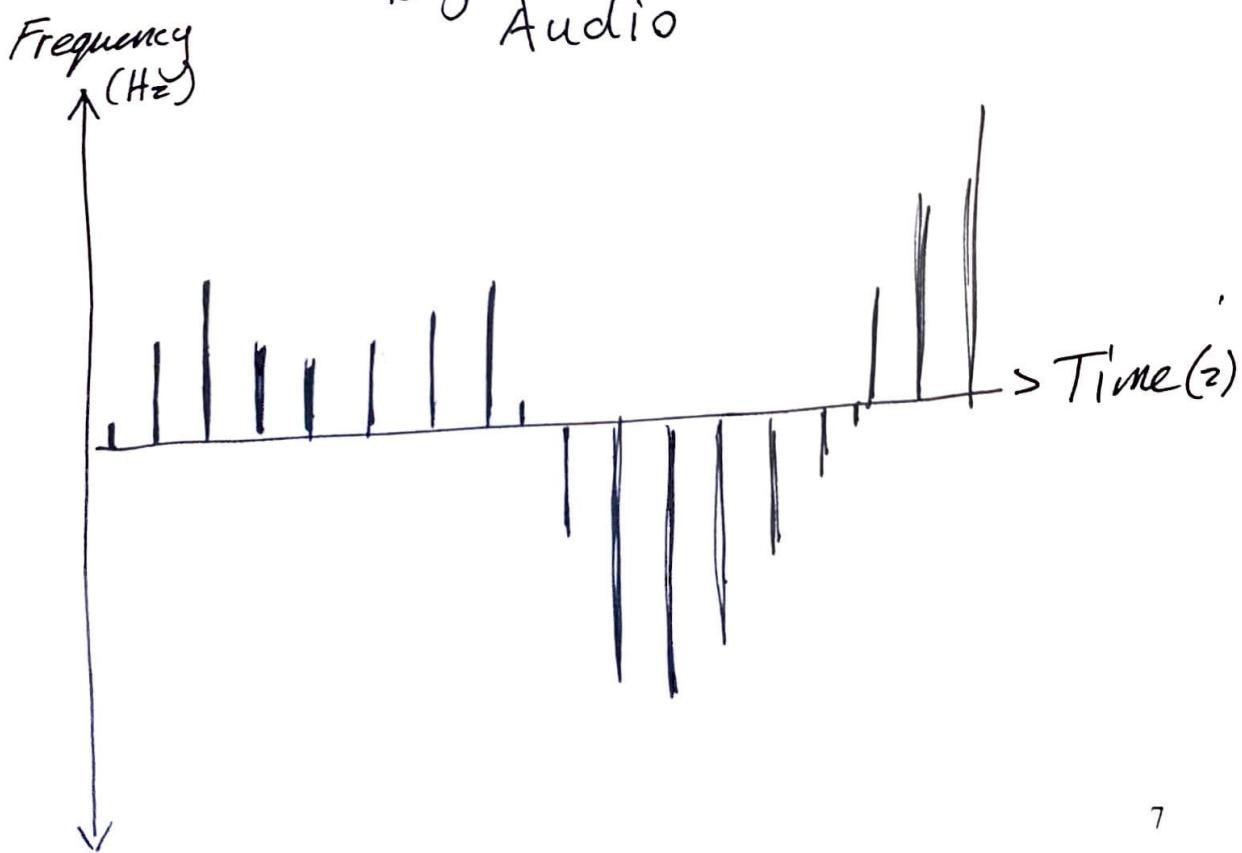
(5)

How are the analogue sounds converted into digital sound files? You may use a diagram to support your answer.

Analogue sounds such as a person speaking or the sound of rain are continuous changes in air pressure called sound waves. A microphone samples the pressure of the air very quickly, determined by the sample rate of the microphone. These recordings of the pressure of the air over time are interpolated by software as it is played back out of speakers. Due to the interpolation of the measured frequencies and the speed at which they are played back, the audio appears to resemble to analogue frequency to the human ears. The individual samples recorded by the microphone are encoded into a file for storage. The higher the sample rate, the more faithfully the digital audio will reflect the source audio.

Frequency  
(Hz)

Analog Audio

Frequency  
(Hz)Digital Sampled  
Audio

Question 14 (5 Marks)

Explain why vector graphics are used to produce and share a graphic logo.

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(5)

Vector graphics are graphics composed of mathematical lines and shapes.

Due to their procedural nature, they are able to be scaled to any size without losing detail. This is a significant benefit for a logo. Another benefit vector graphic logos have over Raster based logos is file size. Due to the limited detail required for most logos, the file sizes to store them when using a ~~a~~ SVG format are very small because the rules for re-constructing the image is the only thing that needs to be stored. This small file size allows vector graphic logos to be shared over the internet, ~~more~~ and moved across local storage drives more quickly and conveniently. Finally, the ~~pre~~

**Section III**

15 marks

**Attempt Question 15****Allow about 35 minutes for this section**

Answer the questions in the spaces provided. These spaces provide guidance for the expected length of response.

**Question 15 (15 Marks)**

(5)

5

- (a) Using an example, outline the purpose of risk assessment within the multimedia industry.

A risk assessment allows everyone involved to understand what risks are inherent with the multimedia task and work to reduce them. By determining both the severity of the risk and ~~as~~ how likely the risk is to occur, ~~as~~ a plan to reduced and eliminate risks can be established. A risk assessment can be ~~done~~ done by or share to an insurance company to reimburse the multimedia venture in the event of a risk occurring. It can also be used as ~~proof~~ \* proof of safe business practice. An example would be the risks associated with ~~using and~~ operating a laser cutter. For example the risk of breathing in

toxic fumes from the cutter must be addressed and reduced. By providing employees with an accurate risk assessment, an employee of a ~~not~~ multimedia based company would be able to identify areas of concern and make an informed decision regarding their operation of the laser cutter.

Another example ~~is~~ is the risk of an unergonomic environment for employers. By ~~not~~

A multimedia company is also able to identify areas of concern by conducting a risk assessment of their practice. By conducting a risk assessment they are able to better ensure the safety of their employees and prevent liability in the case of ~~an~~ an accident. ✓

- (b) Explain how particular historical developments have influenced the multimedia industry.

(Q)

10

The biggest impact on the multimedia industry was the introduction of the internet. The world wide web that has been made available through the development of the internet has added a vast number of multimedia opportunities. Anything involving website development and management would be made ~~obsolete~~ facile without the introduction of the internet.

Additionally, improvements in transfer speeds over the internet due to developments in Broadband Bandwidth capability. By allowing larger files to be sent more quickly over the internet, improvements in many multimedia related areas have occurred. Faster average speeds have allowed websites to be more dynamic and include more multimedia based elements such as

Such as images and videos.

Improvements in storage capabilities have also greatly improved the multimedia industry. By allowing programs to be larger with less detrimental impact, improvements in storage sizes and speeds allow for programs with increased functionality.

Fast and reliable internet ~~also~~ allows for collaborative work on large files in real time. Solutions such as Google Docs, Google Sheets, and Google Slides allow multimedia developers to collaborate in real time. Other technologies such as Git functionality allows for less frequent but more comprehensive syncing and version management. Due to advances in storage efficiency and internet speeds Microsoft is able to provide free cloud backups ~~of git~~ and hosting of git servers through Github.

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**Section I  
Multiple Choice Answer Sheet**

Place a X in the correct box.

Question	A	B	C	D
1			X ✓	
2			X ✓	
3				X ✓
4			X ✓	
5	X ✓			
6		X ✓		
7	X ✓			
8		X ✗		
9				X ✓
10	X ✓			

mega → giga

9/10