



**L-Università
ta' Malta**

MATRICULATION AND SECONDARY EDUCATION CERTIFICATE
EXAMINATIONS BOARD

**SECONDARY EDUCATION CERTIFICATE LEVEL
2023 MAIN SESSION**

SUBJECT:	Information Technology
PAPER NUMBER:	Controlled – Unit 2
DATE:	10 th May 2022
TIME:	10:00 a.m. to 11:35 a.m.

**THIS PAPER SHOULD BE RETURNED TO THE INVIGILATOR
AFTER THE EXAMINATION.**

Name of candidate _____

I.D. number _____

School _____

Class _____

Answer **ALL** questions in the space provided.

Scenario

- A new educational game has been developed by a group of individuals.
- This game has been bought by the Maltese Government and is going to be distributed to all educational institutions in Malta.

Question 1

K-1 (4 marks)

The government plans to demonstrate how this game works using a variety of media.

a) List **TWO** different types of media, apart from 'images', 'audio', 'video' and 'ABS/PLA filament'.

Media 1: _____ (0.5)

Media 2: _____ (0.5)

b) Relate each type of media listed in Question 1a with **ONE** of the human senses.

Human sense related to Media 1: _____ (0.5)

Human sense related to Media 2: _____ (0.5)

c) For each type of media listed in Question 1a, identify **TWO** hardware devices which are required to develop or experience the media.

Hardware 1 required for Media 1: _____ (0.5)

Hardware 2 required for Media 1: _____ (0.5)

Hardware 1 required for Media 2: _____ (0.5)

Hardware 2 required for Media 2: _____ (0.5)

Question 2

K-2 (4 marks)

The newly developed educational game includes multiple images.

a) State **FOUR** main characteristics of image formats, apart from 'image size' and 'resolution'.

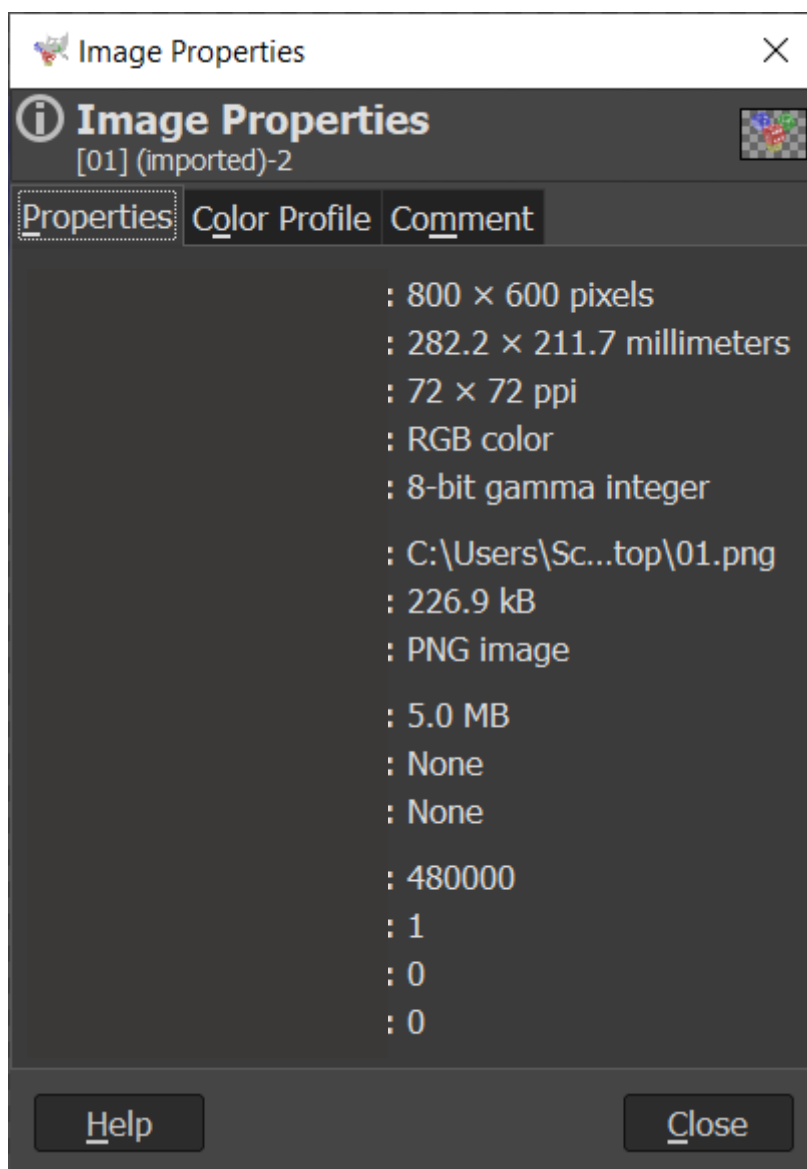
Characteristic 1: _____ (0.25)

Characteristic 2: _____ (0.25)

Characteristic 3: _____ (0.25)

Characteristic 4: _____ (0.25)

- b) The following screenshot shows some properties of the image file named '01.png', which was used in this game.



Source: https://en.wikipedia.org/wiki/Portable_Network_Graphics

Identify the value of the image size and the resolution for the '01.png' image file.

Image size: _____ (0.5)

Resolution: _____ (0.5)

This question continues on next page.

c) Describe 'image size' and 'resolution' as characteristics of PNG images.

[illegible]

Question 3

K-4 (4 marks)

Sound and audio are also incorporated in the educational game.

a) Name **TWO** audio file characteristics.

Characteristic 1: _____ (0.5)

Characteristic 2: _____ (0.5)

b) Relate the following characteristics with the audio file types listed in Table 1 below:

	Uncompressed	Lossy	Lossless
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Table 1: Audio Files Characteristics

Audio File Types	Characteristics
FLAC	
WAV	
MP3	
LPCM	

(1)

c) Describe the **TWO** audio file characteristics named in Question 3a.

[illegible]

Question 4

K-5 (4 marks)

The Help section of this educational game consists of multiple videos showing how to navigate through the different sections of the game.

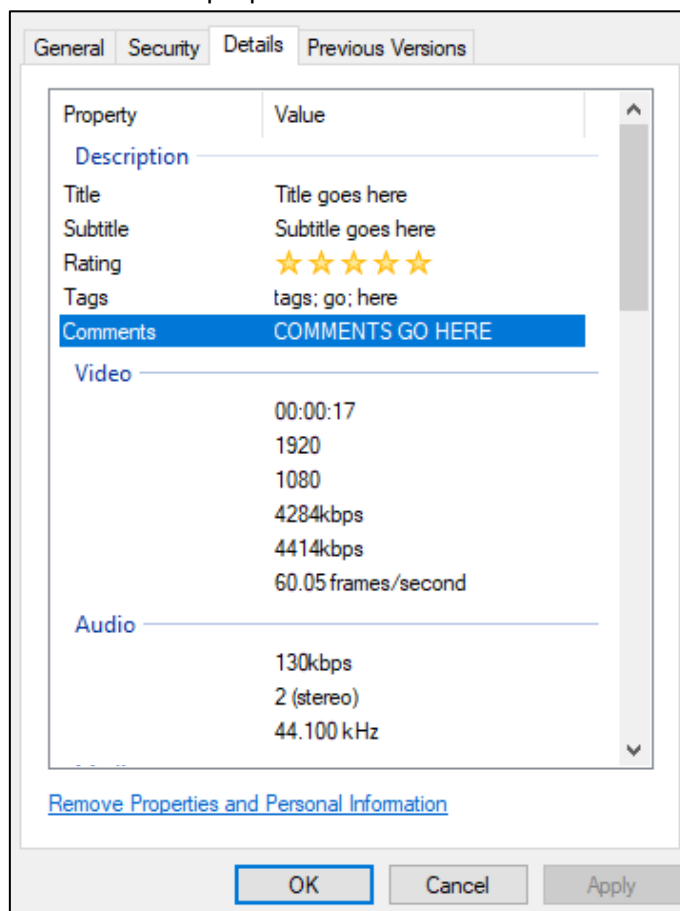
a) Name **TWO** different video file characteristics except for 'duration (length)' and 'frame rate'.

Characteristic 1: _____ (0.5)

Characteristic 2: _____ (0.5)

This question continues on next page.

b) The following screenshot shows some properties of an MPEG4 video file.



(Source: <https://stackoverflow.com>)

Identify the value of the frame rate and the duration (length), for the video file.

Frame rate: _____ (0.5)

Duration (length): _____ (0.5)

c) Describe the following **TWO** video characteristics.

Frame Rate	Duration (length)

(2)

Question 5

C-3 (6 marks)

- The government would like to put some promotional audio and video clips of this educational game on Facebook.
 - Some advisors were against the use of .wav files for audio and .avi for video files in such scenario.
- a) Explain **ONE** limitation of .wav files and **ONE** limitation of .avi files with respect to using such file types when uploading content on Facebook.

Explanation of .wav limitation:

(1)

Explanation of .avi limitation:

(1)

This question continues on next page.

- b) Justify why .mp3 audio files and .mpeg4 video files would be more appropriate when uploading content on Facebook.

Justification of .mp3 audio file:

(1)

Justification of .mpeg4 video file:

(1)

- c) Justify why .mp4 video containers are more appropriate than Matroska (.mkv) containers for this scenario based on file size and compatibility.

Justification of .mp4 video container based on file size and compatibility:

(2)

Question 6**K-7 (4 marks)**

Further information related to the educational game will be found on a website which will be developed specifically for this purpose.

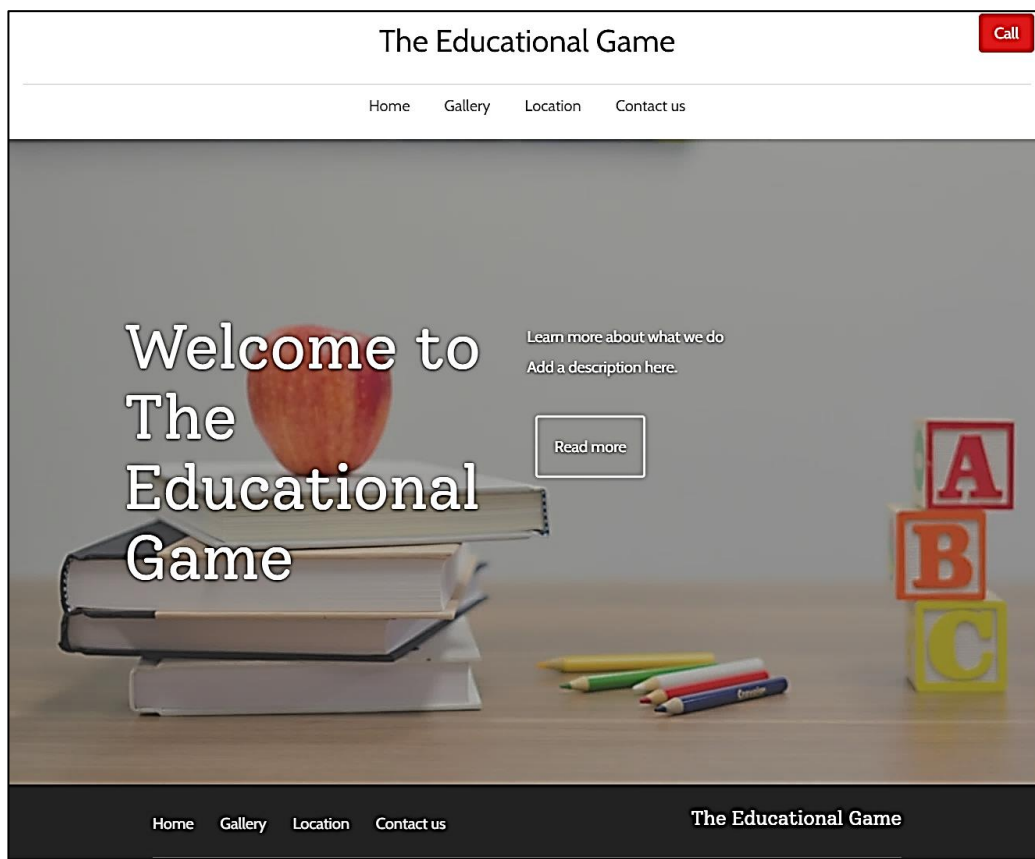
a) List **TWO** basic elements of a website apart from the navigation menu and the footer.

Element 1: _____ (0.5)

Element 2: _____ (0.5)

b) The image below shows a possible version of the website.

Identify the **TWO** basic elements you listed in Question 6a by drawing a circle or otherwise around these elements in the image below. It is important to label each identified element by writing its name next to it. (1)



c) Outline the purpose of each of the **TWO** basic elements of a website you listed in Question 6a.

This question continues on next page.

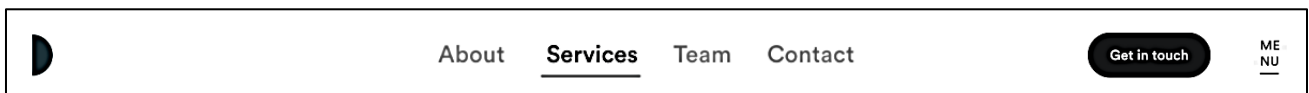
(2)

Question 7

C-4 (6 marks)

- It is important that the interface of the website is eye-catching, user friendly and mobile friendly.
- The website should have features that allow its visitors to contact the game creators through social media.

Following are the screenshots of two navigation menus and two footers.



Navigation Menu 1
(Source: <https://dribbble.com/>)



Navigation Menu 2
(Source: <https://www.create.net/>)



Footer 1
(Source: <https://www.awwwards.com/>)



Footer 2
(Source: <https://www.baamboostudio.com/>)

- a) Select the most appropriate navigation menu and footer for the website containing information about the educational game.

Navigation Menu: _____ (1)

Footer: _____ (1)

- b) Justify the choice of the navigation menu and the footer selected in Question 7a.

Justification of Navigation Menu: _____

_____ (1)

Justification of Footer: _____

_____ (1)

- c) Considering that the website is intended to provide information related to the educational game, argue whether it would be better to create a dynamic website or a static website.

_____ (2)

Please turn the page.

Question 8**K-9 (4 marks)**

The website for the educational game is mostly developed via HTML.

a) Define HTML and its use.

 (1)

b) List **TWO** HTML basic tags and **TWO** HTML 5 tags which can be used when developing a website.

HTML basic tag 1: _____ (0.25)

HTML basic tag 2: _____ (0.25)

HTML 5 tag 1: _____ (0.25)

HTML 5 tag 2: _____ (0.25)

c) Relate the following **FOUR** attributes to the appropriate statement which states their use in relation to the HTML tags.

alt	href	id	source (src)
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i. This attribute is used to uniquely identify an HTML element such as paragraph or heading. _____

ii. This attribute is used with the tag so that when an image is not displayed on the webpage, text is shown instead. _____

iii. This attribute is used with the <a> tag to specify the URL of the webpage the link goes to. _____

iv. The tag uses this attribute to determine the path leading to the image to be displayed. _____

(2)

Question 9**K-10 (4 marks)**

The utilisation of CSS together with HTML would make the website more appealing and complete.

a) Define CSS and its use.

 (1)

b) Some employees suggested using internal CSS, whilst others suggested the use of inline CSS.

Distinguish between internal and inline CSS.

 (1)

c) The following lines of code are to be included in the CSS of the website.

```
p {  
    background-color: blue;  
    color: yellow;  
    font-family: verdana;  
}
```

Outline the use of the following CSS selector and declarations utilised in the code above.

i. paragraph (element) selector: _____

_____ (0.5)

This question continues on next page.

ii. background-color declaration: _____

_____ (0.5)

iii. color declaration: _____

_____ (0.5)

iv. font-family declaration: _____

_____ (0.5)

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