مدرسة الرواكِ الإعدادية والثانوية
Al Rawabi Middle & High School

AL RAWABI SCHOOL

SUBJECT – COMPUTER SCIENCE (0478)

CHAPTER 1 – DATA REPRESENTATION
TOPIC - TEXT, SOUND & IMAGES PAST
PAPER BOOKLET – 1.2

NAME:	…………………………………………………………………………….
INDEX:	…………………………………………………………………………….
CLASS:	…………………………………………………………………………….

Remarks:

Teacher's Signature:

Parent's Signature:

TEXT

1. SPECIMEN PAPER

7 The Unicode character set is used to represent text that is typed into a computer.

(a) Describe what is meant by a character set.

....

....

....

.... [2]

(b) One disadvantage of using the Unicode character set, instead of the ASCII character set, is that the text stored takes up more storage space.

Give **one** reason why it takes up more storage space.

....

.... [1]

2. FM 2024/12

(iii) Explain how the word 'RED' is represented using a character set.

....

....

....

.... [2]

3. ON 2024/11

3 A user enters text into a computer system, using a keyboard.

An American standard code for information interchange (ASCII) character set is used to convert the text to binary.

(a) Identify **one** other character set that could be used to convert the text to binary.

.... [1]

ON 2024/13

(d) When the employee enters the email address, the computer uses Unicode to convert the email address to binary.

(i) State what Unicode is an example of.

.... [1]

(ii) Give **two** advantages of the computer using Unicode instead of American standard code for information interchange (ASCII).

1 ....

....

2 ....

....
[2]

(iii) Give **one** disadvantage of the computer using Unicode instead of ASCII.

....

.... [1]

MJ 2023/12 – Q3

3 When keys are pressed on a keyboard, the text is converted to binary to be processed by the computer.

(a) Describe how the text is converted to binary to be processed by the computer.

....

....

....

....

....

.... [3]

(b) Text that is input into a computer can be stored in a text file.

A text file can be compressed using lossless compression.

(i) State what effect this has on the file size.

....

.... [1]

(d) The musician types the words for the song into a document.

Two character sets that can be used when converting text to digital are the American standard code for information interchange (ASCII) and Unicode.

Explain the differences between the ASCII character set and the Unicode character set.

....

....

....

....

....

....

....

.... [4]

IMAGE

1. FM 2025/12

2   An artist creates an image on a computer.

    (a)   State what is meant by the colour depth of an image.

        ....

        .... [1]

    (b)   Describe the relationship between the resolution of the image and the file size of the image.

        ....

        ....

        ....

        .... [2]

2. MJ 2024/13

2   An image has a 16-bit colour depth and a resolution of 1000×1750 pixels.

    (a)   State what is meant by a 16-bit colour depth.

        ....

        .... [1]

    (b)   The resolution of the image is changed to 750×1500 pixels.

        Give the effect this will have on the file size of the image.

        ....

        .... [1]

3. ON 2023/13

7   A photographer takes an image with a digital camera. The photographer sets the resolution and colour depth for the image.

    (a)   State what is meant by the image resolution.

        ....

        .... [1]

    (b)   State what is meant by the image colour depth.

        ....

        .... [1]

(c) Give **one** benefit of increasing the colour depth of the image.

....

.... [1]

4. FM 2023/12 – Q4

4   A wildlife photographer stores their digital images on a computer.

(a) Complete the table by defining each term about images.

Image term	Definition
pixel	....
resolution	....

Excel

[2]

5. FM 2022/12 – Q2

2   Nadia creates a digital image for a school project.

(a) Give **one** example of an image format.

.... [1]

(b) Describe how a digital image file is stored by a computer.

....

....

....

....

....

.... [3]

MJ 2018/12

2 **(a)** Nancy has captured images of her holiday with her camera. The captured images are stored as digital photo files on her camera.

Explain how the captured images are converted to digital photo files.

....

....

....

....

....

....

....

.... [4]

FM 2018/12

11 Miriam needs to use a large high-resolution photo as a thumbnail image on a website.

She will use lossy compression to reduce the file size of the photo to create the thumbnail image.

(a) State why a smaller file size is appropriate for this situation.

....

....[1]

SOUND

MJ 2023/11 – Q2

2 A student has a sound file that is too large to be stored on their external secondary storage device. The student compresses the sound file to make the file size smaller.

The compression method used reduces the sample rate and the sample resolution of the sound file.

(a) State what is meant by the sample rate and sample resolution.

Sample rate ....

....

Sample resolution ....

....

[2]

ON 2023/11

5 A musician is recording herself playing the music for a song on the piano.

(a) Explain how the analogue sound is recorded and converted to digital.

....

....

....

....

....

....

....

....

....

....

.... [5]

(b) State **two** ways that the accuracy of the recording could be increased.

1 ....

2 ....

[2]

ON 2023/12

5 A band is recording their new song. They need to consider the sample rate and sample resolution of their recording.

(a) Give **one** benefit of using a higher sample rate to record the song.

....

.... [1]

(b) Give **one** drawback of using a higher sample rate to record the song.

....

.... [1]

(c) Describe what is meant by sample resolution.

....

....

....

.... [2]

(d) The band wants to compress the sound file, but they do **not** want any data to be permanently removed.

Identify the compression method that should be used.

.... [1]

(c) Sound can be represented as binary.

(i) Explain why recording sound with a higher sampling resolution creates a more accurate recording.

....

....

....

.... [2]

(ii) Give **one** other way that the accuracy of a sound recording can be improved.

....

.... [1]

PRACTISE QUESTIONS

ON 2021/13

6 The paragraph describes an MP3 file, MP4 file and a MIDI file.

Complete the paragraph using the list of terms. **Not** all terms in the list need to be used.

- can
- cannot
- compressed
- image
- microphone
- MIDI
- MP3
- MP4
- notes
- pixels
- speaker
- should
- uncompressed

.... files are a multimedia format that stores video and audio.

.... files are only used as a digital recording of sound; they

are created using a .... and recording software. The data in

the file is ....

.... files contain instructions on how to create the

sound. They are created using digital instruments. The file stores individual

...., each **one** .... be

changed in this type of file.

[7]

FM 2020/12 – Q3

(ii) Give **two** features of an MP3 file.

1 ....

....

2 ....

....

[2]

ON 2018/11

1 (a) Computer files can be saved in different file formats.

Four file formats and four file types are given.

Draw a line to match each file format to the most suitable file type.

File format   **File type**

.jpeg		Text file
.mp3		Image file
.mp4		Audio file
.txt		Video file

[3]

ON 2017/11

2 Data files are stored in different file formats.

Complete the table by providing a suitable file format for each file type. The first one has been done for you.

File type	File format
Pictures	.JPEG
Text	
Sound	
Video	

[3]

ON 2015/11 – Q13

(e) A device that allows audio signals to be converted into electrical signals which can be interpreted by a computer after being converted into digital signals.

....[1]

ON 2015/12

2 Seven computer terms and seven descriptions are shown below.

Draw a line to link each computer term to its most appropriate description.

Computer term	**Description**
Interface	Reduction of file size by permanently removing some redundant information from the file
Interrupt	File compression format designed to make photo files smaller in size for storage and for transmission
JPEG	File compression system for music which does not noticeably affect the quality of the sound
Lossless compression	Hardware component that allows the user to communicate with a computer or operating system
Lossy compression	The file is reduced in size for transmission and storage; it is then put back together again later producing a file identical to the original
MIDI	Signal sent to a processor which may cause a break in execution of the current routine, according to priorities
MP3 format	Standard adopted by the electronic music industry for controlling devices such as synthesisers and sound cards

[6]

END