Subject	Computer Science		
Title/Topic	**Format**	**Length**	**WC**
Part 1 – Data Representation	Written Part 1	45 min	
Part 2 – Algorithms	Written Part 2	45 mins	
Part 3 – Programming Techniques	Written Part 3	45 mins	

In this assessment the topics I will be assessed on are…

Part1 – Computer Systems – Theory

Binary Data- Numbers

- Converting from binary to denary
- Converting from denary to binary
- Converting from hex to denary
- Converting from denary to hex
- Converting from Hex to binary
- Converting from Binary to hex
- Adding binary numbers
- Shifting left and right

Binary Data- Text

- What is a character set?
- How is ASCII used to represent text?
- What is the difference between ASCII and Unicode?
- Working out the ASCII values for any letter if we are told one of them

Binary Data- Images

- What is a pixel?
- What is a bitmap image?
- What are the factors that affect image quality?
- What is the colour depth?
- How is the file size of an image calculated?
- Calculating how many images can be stored on a given device.

Binary Data- Sound

- How is sound converted from analogue to digital?
- What is sampling?
- What are the sampling frequency and sampling resolution?
- What are the factors that affect sound quality?
- How is the size of a sound file calculated?

Part 2 – Standard algorithms and flowcharts

Drawing and interpreting flowcharts

Computational thinking-

- Abstraction
- Decomposition
- Algorithms thinking

Searching and Sorting Algorithms

- How are lists of data searched using
  - Linear Search algorithm
  - Binary Search Algorithm
- How is a list of data sorted using-
  - Bubble Sort
  - Insertion Sort
  - Merge Sort

Paper 3 - Programming Techniques

Basic Concepts-

- Creating and using variables of different datatypes
- Casting variables to different datatypes
- Using Mathematical, Logical and Comparative operators in programs
- Using selection – how to write a working IF ELIF ELSE statement
- Using iteration – How to write a FOR and WHILE loop for a given scenario
- Using built-in casting functions – int(), str() and float()

Trace Tables

- Tracing and algorithm and showing how variables change

Further techniques

- Creating and using lists to store data
- Accessing data in a 2D list
- Writing functions (defs) that take in parameters
- Reading and writing data from a file

What should I do to revise and prepare for this assessment?

To prepare for this assessment:

1. Re-read the above topics in your classwork booklets – Part 1 and Part 2
2. Complete the programming practice activities
3. Complete the practice questions and activities provided
4. Learn the appropriate knowledge from the factsheets

What useful websites/resources could I use to help me prepare?

1) www.gcsepod.com
2) www.youtube.com (Search "CraigNDave OCR GCSE" to get the playlist of videos)
3) www.isaaccomputerscience.org (an online revision guide with quizes)
4) Seneca