Subject	Computer Science

Title/Topic	Format	Length
Part 1 – Computer Systems	Written paper	50 mins
Part 2 – Programming	Written paper with coding-like questions	50 mins

In this Advent assessment I will be asked to show I can…

Part 1 – Computer Systems Theory

- Describe the main components of a CPU and their purpose
- Describe the stages of the FDE cycle, including how different registers are used at each stage
- Identify the main features of Von Neumann Architecture and Harvard Architecture
- Explain the differences between CISC and RISC architecture
- Explain how co-processors such as GPUs can improve
- Interpret and write assembly instructions using Little Man Computer
- Describe the relationship between CPU, Primary memory and secondary storage
- State the properties of the different types of primary memory (RAM and ROM)
- State the properties of the main types of secondary storage
- Describe the purpose of the operating system
- Explain the FIVE main features of an operating system
- Describe the memory management techniques used by the OS – paging, segmentation and virtual memory
- Describe the scheduling algorithms used to manage CPU time

Paper 2 – Problem Solving and Programming

Combining programming skills together to solve problems.
You will have specific questions on-

1. Variables and Data Types:
    - Understanding local and global variables.
    - Variable naming rules and conventions.
2. Programming Logic and Pseudocode:
    - Designing procedures and conditional statements.
    - Writing pseudocode to solve problems.
3. Modular Programming:
    - Advantages of using a modular approach in software development.
4. Algorithmic Thinking:
    - Evaluating pseudocode and algorithms.
5. Programming Control Flow:
    - Implementing control flow mechanisms like branching and jumping in code.
6. Functions and Procedures:
    - Writing functions and procedures to perform specific tasks.

7. Data Handling:
    - Working with arrays and 2-dimensional arrays.
8. Data Conversion and Estimation:
    - Converting and estimating data values.
9. Variable Types:
    - Understanding floating-point variables.
10. Problem Solving and Algorithm Design:
    - Developing algorithms to solve real-world problems.
11. Iteration and lists:
    - Creating program to iterate through data and perform calculations

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

Use the class booklet and knowledge sheets to revise key terms and knowledge.

Complete the revision homework tasks and practice questions

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

You can access your files at home via your Office 365/OneDrive