A-level
COMPUTER SCIENCE

Paper 1

June 2025

Preliminary Material

To be opened and issued to candidates on or after 1 September 2024, subject to the instructions given in the Teacher's Notes (7517/1/TN).

Note

- The Preliminary Material and Skeleton Program are to be seen by candidates and their teachers **only**, for use during preparation for the examination on **11 June 2025**. They **cannot** be used by anyone else for any other purpose, other than that stated in the instructions issued, until after the examination date has passed. They must **not** be provided to third parties.

Information

- A Skeleton Program is provided separately by your teacher and must be read in conjunction with this Preliminary Material.
- You are advised to familiarise yourselves with the Preliminary Material and Skeleton Program before the examination.
- A copy of this Preliminary Material and the Skeleton Program will be made available to you in hard copy and electronically at the start of the examination.
- You must **not** take any copy of the Preliminary Material, Skeleton Program or any other material into the examination room.

INSTRUCTIONS FOR CANDIDATES

Electronic Answer Document

Answers for all questions in all sections must be entered into the word-processed document made available to you at the start of the examination and referred to in the question paper rubrics as the **Electronic Answer Document**.

Preparation for the examination

You should ensure that you are familiar with the **Preliminary Material** and the **Skeleton Program** for your programming language.

Target Clear Game

Target Clear is a simple game where the player enters an infix expression that they think evaluates to one of the integers from a list of targets.

The infix expression can use any combination of the operators +, –, *, / and numbers from a list of allowed numbers.

The infix expression entered is valid if it:
- uses only numbers from the list of allowed numbers
- evaluates to one of the target numbers
- uses at least one of the operators: +, –, *, /

If the infix expression entered is valid then:
- all instances of the target number that the expression evaluates to are removed from the list of targets
- the player's score is increased
- the numbers used in the infix expression are replaced in the list of allowed numbers by new, randomly generated, numbers (except in the training game, where the list of allowed numbers never changes).

If the infix expression entered is not valid, then the player's score is decreased.

After each turn, the numbers in the list of targets all move along one position and a new target is added to the end of the list.

The game ends if there is ever a number in the first position in the list of targets that is not the evaluation of the infix expression just entered by the player.

Example of part of a game

Turn 1

					15	3	80	17	4	4	23	62	7	31	11	0	18	19	22

Numbers available: 4 5 3 3 5

Current score: 0

Player enters the expression 5*3

This expression evaluates to 15

Turn 2

15 has been removed from the list of targets; a new, randomly generated, number (41) has been added to the list of targets. The 5 and 3 have been removed from the list of allowed numbers and replaced with two new, randomly generated, numbers.

					3	80	17	4	4	23	62	7	31	11	0	18	19	22	41

Numbers available: 4 3 5 8 8

Current score: 1

Player enters the expression 5*4+3

This expression evaluates to 23

Turn 3

23 has been removed from the list of targets; a new, randomly generated, number (13) has been added to the list of targets. The 5, 4 and 3 have been removed from the list of allowed numbers and replaced with three new, randomly generated, numbers.

				3	80	17	4	4		62	7	31	11	0	18	19	22	41	13

Numbers available: 8 8 4 2 7

Current score: 2

Player enters the expression 8/8*4

This expression evaluates to 4

Turn 4

The two 4s have been removed from the list of targets; a new, randomly generated, number (22) has been added to the list of targets. The 8, 8 and 4 have been removed from the list of allowed numbers and replaced with three new, randomly generated, numbers.

			3	80	17				62	7	31	11	0	18	19	22	41	13	22

Numbers available: 2 7 8 3 4

Current score: 5

Player enters the expression 4–1

This expression evaluates to 3

Turn 5

There is a 3 in the list of targets but there was not a 1 in the list of allowed numbers. A new, randomly generated, number (75) has been added to the list of targets. The player's score has decreased.

		3	80	17				62	7	31	11	0	18	19	22	41	13	22	75

Numbers available: 2 7 8 3 4

Current score: 4

Player enters the expression 3*4

This expression evaluates to 12

Turn 6

12 was not in the list of targets. A new, randomly generated, number (5) has been added to the list of targets. The player's score has decreased.

	3	80	17				62	7	31	11	0	18	19	22	41	13	22	75	5

Numbers available: 2 7 8 3 4

Current score: 3

END OF PRELIMINARY MATERIAL

There is no Preliminary Material printed on this page