AQA

AS
COMPUTER SCIENCE
Paper 1
June 2025

Preliminary Material

To be opened and issued to candidates on or after **1 March 2025** subject to the instructions given in the **Teacher's Notes** (7516/1/TN).

Note

- The **Preliminary Material**, **Skeleton Program** and **Data Files** are to be seen by candidates and their teachers **only**, for use during preparation for the examination on **Tuesday 13 May 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 yourself 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 and Data Files or any other material into the examination room.

7516/1/PM

INSTRUCTIONS FOR CANDIDATES

The question paper is divided into **three** sections.

Section A

You will be asked to create a new program and answer questions **not** related to the **Preliminary Material** or **Skeleton Program**.

Section B

Questions will refer to the **Preliminary Material** and the **Skeleton Program**, but will not require programming.

Section C

Questions will use the **Preliminary Material** and the **Skeleton Program** and may require the `MapData.txt` and `HiddenData.txt` **Data Files**.

Electronic Answer Document

Answers for **all** questions, for **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 this **Preliminary Material** and the **Skeleton Program** for your programming language.

Treasure Hunt Game

The **Skeleton Program** accompanying this **Preliminary Material** is a game involving a treasure island map and a pirate.

When the game starts, a map is produced that shows a treasure island. A pirate comes ashore at a given landing place along the island beach. The aim of the game is for the user to get the pirate to find the buried treasure.
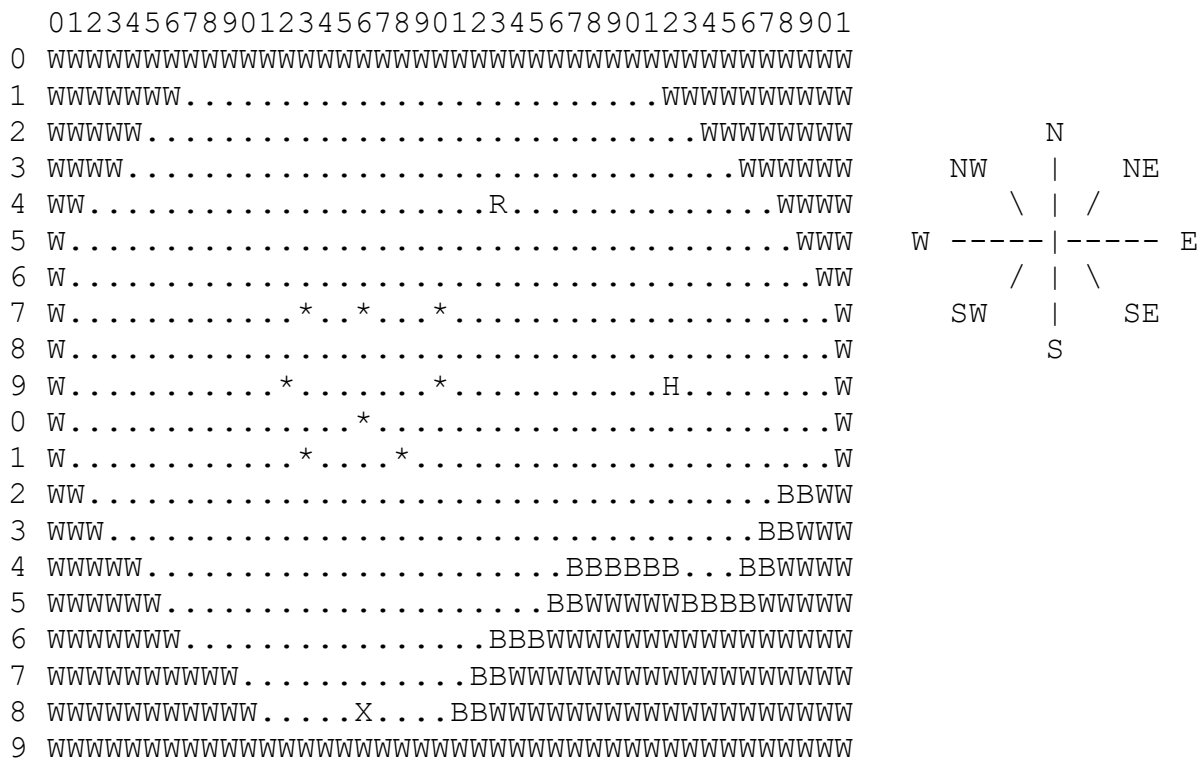
The **Skeleton Program** allows the user to choose between two actions for the pirate:
• walk a chosen number of squares in a chosen direction; or
• dig in the square where the pirate currently stands.

After each walk, the map shows where the pirate stands at that point in the game.

Figure 1 shows the initial map where X marks the landing place where the pirate comes ashore. The map itself is 20 rows by 42 columns. For ease of referencing a particular square, the row and column headings show the numbers 0 to 9 repeatedly. The compass is shown on the right of the map.

Figure 1

```
   012345678901234567890123456789012345678901
0  WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWW
1  WWWWWWW.............................WWWWWWWWW
2  WWWWW................................WWWWWWWW          N
3  WWWW..................................WWWWWW    NW   |   NE
4  WW.....................R..............WWWW       \  |  /
5  W.....................................WWW    W -----|----- E
6  W......................................WW       /  |  \
7  W............*..*...*...................W    SW   |   SE
8  W......................................W          S
9  W..........*.......*...........H........W
0  W...................*...................W
1  W.........*....*.....................W
2  WW...................................BBWW
3  WWW.................................BBWWW
4  WWWWW....................BBBBBB...BBWWWW
5  WWWWWW..................BBWWWWWBBBBWWWWW
6  WWWWWWW...............BBBWWWWWWWWWWWWWWW
7  WWWWWWWWW...........BBWWWWWWWWWWWWWWWWWW
8  WWWWWWWWWWW.....X....BBWWWWWWWWWWWWWWWWWW
9  WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWW
```

• W represents water
• . represents sand
• B represents a boulder
• * represents a tree
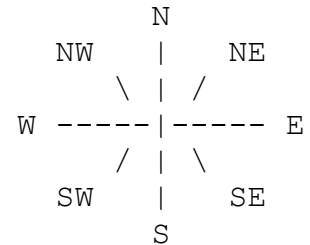• R represents a rock
• H represents a hut

Figure 2 shows the maps before and after the pirate walked 5 squares in a NE (North-Easterly) direction starting at row 14 column 24. The pirate is represented by the letter `P`.

Figure 2

```
     01234567890123456789012345678901
  0  WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWW
  1  WWWWWWW......................WWWWWWWWW
  2  WWWWW.......................WWWWWWWW              N
  3  WWWW........................WWWWW          NW   |   NE
  4  WW....................R.............WWWW         \  |  /
  5  W...................................WWW    W -----|----- E
  6  W....................................WW         /  |  \
  7  W............*..*...*...................W   SW   |   SE
  8  W....................................W           S
  9  W...........*.......*..........H........W
  0  W.................*....................W
  1  W............*....*....................W
  2  WW..................................BBWW
  3  WWW................................BBWWW
  4  WWWWW..................P..BBBBBB...BBWWWW
  5  WWWWWW..................BBWWWWWBBBBWWWWW
  6  WWWWWWW...............BBBWWWWWWWWWWWWWWW
  7  WWWWWWWWWW...........BBWWWWWWWWWWWWWWWWW
  8  WWWWWWWWWWWW.....X....BBWWWWWWWWWWWWWWWW
  9  WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWW
```
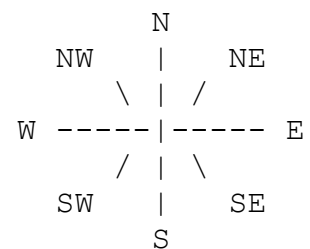
```
Pirate to walk (W) or dig (D), to finish game press Enter: W
Enter length (1 to 9) and direction (N, NE, E, SE, S, SW, W, NW): 5NE
```

```
     01234567890123456789012345678901
  0  WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWW
  1  WWWWWWW......................WWWWWWWWW
  2  WWWWW.......................WWWWWWWW              N
  3  WWWW........................WWWWW          NW   |   NE
  4  WW....................R.............WWWW         \  |  /
  5  W...................................WWW    W -----|----- E
  6  W....................................WW         /  |  \
  7  W............*..*...*...................W   SW   |   SE
  8  W....................................W           S
  9  W...........*.......*.......P..H........W
  0  W.................*....................W
  1  W............*....*....................W
  2  WW..................................BBWW
  3  WWW................................BBWWW
  4  WWWWW..................BBBBBB...BBWWWW
  5  WWWWWW..................BBWWWWWBBBBWWWWW
  6  WWWWWWW...............BBBWWWWWWWWWWWWWWW
  7  WWWWWWWWWW...........BBWWWWWWWWWWWWWWWWW
  8  WWWWWWWWWWWW.....X....BBWWWWWWWWWWWWWWWW
  9  WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWW
```

At the start of the game, the pirate is given a score of 100. Different activities change the score by different amounts.

Figure 3 shows the hidden map, where `T` represents the treasure, `G` represents a gold coin and `C` represents a coconut. When digging in the square where the pirate currently stands, an item may be found, as shown on the hidden map.

Figure 3

```
   01234567890123456789012345678901234567890
0  .........................................
1  ..........................GGG............
2  .........................GTGG............
3  .........................G.G.............
4  .........................................
5  .........................................
6  .........................................
7  .........................................
8  ..............C..C.C.....................
9  ..............C.....C....................
0  ...........C.............................
1  ...........C.CC.C........................
2  .........................................
3  .........................................
4  .........................................
5  .........................................
6  .........................................
7  .........................................
8  .........................................
9  .........................................
```

Figure 4 shows the results displayed at the end of a game.

Figure 4

```
Found Treasure chest
1 gold coins found
2.0 hours spent digging
The score is 265
Press Enter to finish
```

END OF PRELIMINARY MATERIAL