A Level · OCR · Computer Science
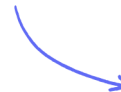
🕐 12 mins   ❓ 4 questions

Exam Questions

6.1 Thinking Abstractly

The Nature of Abstraction / Abstraction & Reality in Computational Thinking / Abstract Models in Computational Thinking

Total Marks   **/12**

1 A text-based computer game allows a user to dig for treasure on an island. The island is designed as a grid with 10 rows and 20 columns to store the treasure. Each square is given an x and y coordinate. Some of the squares in the grid store the name of a treasure object. Each treasure object has a value, e.g. 100 and a level, e.g. "Bronze."

The computer game makes use of abstraction.

Give three benefits of using abstraction when writing a program.

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(3 marks)

2 A programmer is developing an aeroplane simulator. The user will sit in a cockpit and the simulated environment will be displayed on screens around them.

The programmer uses computational methods to design a solution for the program.

Give three potential differences between the abstracted aeroplane simulator and reality

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(3 marks)

3 Taylor is creating an online multiplayer game where users can create accounts and build their own circus. Each circus will contain characters such as clowns, animals, magicians and dancers.

Users can set up a new circus in the online world, purchase new characters and visit other users' circuses.

Taylor uses computational methods to analyse the problem including abstraction.

Describe how Taylor could use abstraction in the design of his online circus game.

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(3 marks)

4 A text-based computer game allows a user to dig for treasure on an island. The island is designed as a grid with 10 rows and 20 columns to store the treasure. Each square is given an x and y coordinate. Some of the squares in the grid store the name of a treasure object. Each treasure object has a value, e.g. 100 and a level, e.g. "Bronze."

The computer game makes use of abstraction

Describe what is meant by the term abstraction and give an example of how abstraction can be used in the treasure game.

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(3 marks)