

A Level • OCR • Computer Science

🕒 18 mins

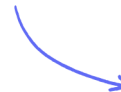
❓ 5 questions

Exam Questions

6.5 Thinking Concurrently

Concurrency in Problem Solving / Concurrent Processing

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Total Marks

/18

- 1 A program designer needs to decide on an algorithm to use from a choice of three. The table shows the worst-case Big O complexities for each algorithm.

Algorithm	Time Complexity	Space Complexity
1	Linear	Exponential
2	Exponential	Constant
3	Logarithmic	Logarithmic

The program designer is investigating the use of concurrent processing.

Give two benefits of using **concurrent processing**.

(2 marks)

- 2 Taylor will make use of concurrent processing within his circus game.

Explain why concurrent processing is needed to allow multiple users to log in and interact with game elements at the same time.

(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 will make use of concurrent processing within his circus game.

Describe what is meant by the term 'concurrent processing'.

(2 marks)

- 4 A program designer is investigating the use of concurrent processing.

Describe what is meant by the term 'concurrent processing'.

(2 marks)

- 5 OCR-Tickets wants to sell tickets for their concerts, plays and other events online. A customer should be able to create an account and then be able to log into their account. Once logged in, customers should be able to carry out actions such as setting their preferences and purchase tickets.

OCR-Tickets have hired a software development company to create the system for them.

Discuss the need for concurrent processing in OCR-Ticket's system and the benefits and drawbacks of using this.

(9 marks)