



ST PAUL'S
GIRLS' SCHOOL

Name:

School:.....

GCSE Board (if known):

Year 12 Entrance Examination
Computer Science
Sample Paper

Time allowed: 45 minutes

There are 4 questions. There is a total of 16 marks.

Instructions:

Answer the questions on the paper provided in this booklet.

All working should be shown.

If you require more space use the back pages.

If you cannot do a question, leave it and go on to the next one: try again later.

If you do not finish, or if you cannot understand all the questions, do not worry. People work at different speeds.

If you finish early, go back and try to improve your answers.

A calculator may be used.

1.

Explain the role of the program counter in the Fetch Execute cycle. [3 marks]

[illegible]

2.

How could binary be used to represent the brightness of stars in the galaxy?

[3 marks]

[illegible]

3. A girl, Alice, is walking through a mysterious forest and meets two strange creatures: a lion and a unicorn.

Each of them has a fixed pattern of telling the truth or lying:

Lion:

- Lies on Monday, Tuesday, Wednesday
- Tells the truth on Thursday, Friday, Saturday, Sunday

Unicorn:

- Lies on Thursday, Friday, Saturday
- Tells the truth on Sunday, Monday, Tuesday, Wednesday

They make the following statements:

- Lion: "Yesterday I was lying."
- Unicorn: "Yesterday I was lying."

Determine the day of the week on which Alice met them.

(Show your working)

[4 marks]

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In Python or pseudocode, write code to find the number in a list whose binary representation contains the most consecutive 1s

Examples:

- You should use **three functions** to solve this problem:

- [6 marks]

[illegible]

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