

**Computer science**  
**Higher level**  
**Paper 1**

Friday 5 May 2017 (afternoon)

2 hours 10 minutes

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**Instructions to candidates**

- Do not open this examination paper until instructed to do so.
- Section A: answer all questions.
- Section B: answer all questions.
- The maximum mark for this examination paper is **[100 marks]**.

## Section A

Answer **all** questions.

1. Describe the use of beta testing. [2]
2. Identify **two** causes of data loss. [2]
3. Identify **two** reasons for releasing a software update. [2]
4. Explain why cache memory can speed up the processing within a computer. [2]
5. One of the functions of an operating system is memory management.  
Describe how this function prevents the system from crashing when more than one program is run at the same time. [2]
6. Identify any **two** of the layers of the OSI model. [2]
7. Explain how compression of data may lead to negative consequences. [3]
8. Explain how the use of media access control (MAC) addresses can improve security. [3]
9. Identify the components of a node in a doubly linked list. [3]
10. Outline the reason why recursive solutions can be memory intensive. [2]
11. Identify **two** features of an autonomous agent acting within a larger system. [2]