



# MAGDALEN COLLEGE SCHOOL

## 16+ Entrance Exam: **Computer Science**

Time allowed: 45 minutes

Name: .....

Current school: .....

### Instructions

- Use **black** ink or ball-point pen.
- Attempt **both** questions.
- Write your answers on the paper provided.

### Information

- The total mark for this paper is 20.
- The marks for each question are shown in brackets – use this as a guide as to how much time to spend on each question.

### Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Write your answers neatly.
- Check your answers if you have time at the end.

**Total**      \_\_\_\_\_ /20      \_\_\_\_\_ %

- 1 Write a function in Python which takes a positive integer as an argument and returns the number of prime factors of this integer.

You can write and use other subroutines (eg checking if the argument is prime) to help you with the main task.

[8 marks]

- 2 Explain step by step what happens between the user typing <https://www.mcsoxford.org> in the address bar of their browser and the website content displaying on their screen.

Consider in particular network protocols being used at each stage of the process.

[12 marks]