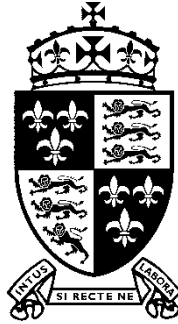


**First name:**

**Surname:**

**Current School:**



# **SHREWSBURY SCHOOL**

## **SIXTH FORM ENTRANCE EXAMINATION 2016**

### **DESIGN AND TECHNOLOGY PRODUCT DESIGN**

**(1 hour)**

#### **Instructions to candidates:**

There are two questions. Answer them both in the spaces provided. You are advised to spend approximately 30 minutes on each question.

All working must be shown.

Do all rough work in this book. Cross through any work you do not want marked.

The maximum mark for this paper is 60. Mark allocations are shown in brackets.

Wherever calculations are needed you should show your working. You are reminded of the need for good English and clear presentation.

Use blue or black ink or ball-point pen. Use pencil and coloured pencils only for drawing.

#### **In addition to this paper you will require:**

a pen, pencil, ruler, eraser, pencil sharpener and coloured pencils.

Answer **both** questions in the spaces provided.

Question 1 is about designing a packaging solution for a fragrance bottle.

You are advised to spend about 30 minutes on this question.

**1** The fragrance bottle below needs to be packaged.



**1 (a)** The table below gives one function of packaging for the fragrance bottle.

Give **two** more functions and in each case explain your answer.

| Function       | Explanation  |
|----------------|--|
| Transportation | <i>The packaging will allow lots of fragrance bottles to be stacked together for transportation to the shop and reduce the space needed for storage.</i> |

| Function       | Explanation                      |
|----------------|----------------------------------|
| .....<br>..... | .....<br>.....<br>.....<br>..... |
| .....<br>..... | .....<br>.....<br>.....<br>..... |

(6 marks)

**1 (b)** Name **two** materials which would be suitable for *packaging* the fragrance bottle.

Give a reason for each material chosen.

Material 1 .....

Reason .....

.....

Material 1 .....

Reason .....

.....

(4 marks)

**Question 1 continues on the next page**

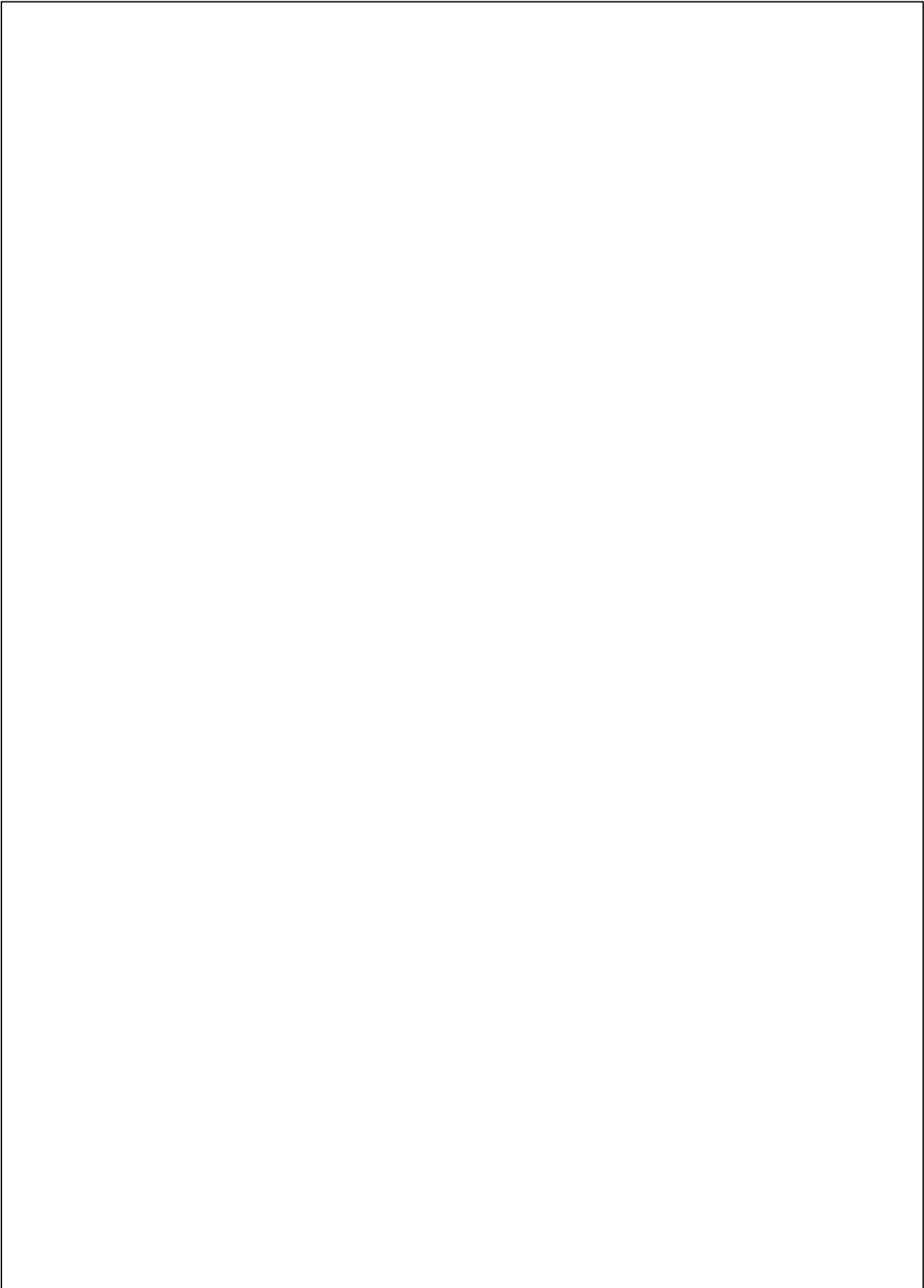
1 (c) In the space below, and on the following page, develop a design to 'package' the fragrance bottle shown below. You should show enough detail for somebody else to be able to make it.

You *must* use the word **biomimicry** as a starting point for your design idea.



There are marks for:

- The creativity of your **packaging** solution (6 marks)
  - How you consider how the packaging would be constructed (5 marks)
  - The surface decoration on your packaging solution, inc. Branding (5 marks)
  - The notes to explain how the packaging performs the functions described in 1 (a). (4 marks)
- (Total 20 marks)



Answer **all** parts of Question 2 in the spaces provided.

**Question 2** is about human factors and product design.

You are advised to spend about 30 minutes on this question.

**2 (a) (i)** What is meant by the term *anthropometrics*?

.....  
.....

(2 marks)

**2 (a) (ii)** What is meant by the term *ergonomics*?

.....  
.....

(2 marks)

**2 (a) (iii)** Explain how *anthropometrics* & *ergonomics* are used in the design of the hair dryer shown below? You should *consider at least 3* explained features in your answer.



.....  
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.....  
.....  
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.....  
.....  
.....

(6 marks)

- 2 (b)** In the space below, and on the following page, develop a new hair dryer design. The design should carefully consider how *ergonomics* will make the product better for the user. You *must* design the product for an **elderly** and potentially **arthritic** person.



There are marks for:

- The creativity of your **hair dryer** solution;
- How you consider the material combinations to be employed;
- The consideration of the primary functions of the hair dryer;
- The notes used to explain how the idea would be ergonomically suitable for the market.

(6 marks)

(5 marks)

(5 marks)

(4 marks)

(Total 20 marks)

End of Questions