

OCR

Oxford Cambridge and RSA

Friday 22 June 2018 – Morning

GCSE DESIGN AND TECHNOLOGY Product Design

A554/01 Designing Influences

Candidates answer on the Question Paper.

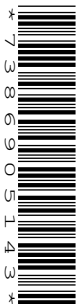
OCR supplied materials:

None

Other materials required:

None

Duration: 1 hour 30 minutes



Candidate forename		Candidate surname	
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Centre number						Candidate number				
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INSTRUCTIONS TO CANDIDATES

- Write your name, centre number and candidate number in the boxes above. Please write clearly and in capital letters.
- Use black ink. HB pencil may be used for graphs and diagrams only.
- Answer **all** the questions in Section A **and** Section B.
- Read each question carefully. Make sure you know what you have to do before starting your answer.
- Write your answer to each question in the space provided. If additional space is required, you should use the lined page(s) at the end of this booklet. The question number(s) must be clearly shown.
- Do **not** write in the barcodes.

INFORMATION FOR CANDIDATES

- The number of marks is given in brackets [] at the end of each question or part question.
- The total number of marks for this paper is **60**.
- **Section A** is worth **30 marks**. You are advised to spend no more than 45 minutes on it.
- **Section B** is worth **30 marks**. You are advised to spend no more than 45 minutes on it.
- You will need to select from the tables in **Section B** when answering Question 4 and Question 5 of this paper. 'Trend setter' and 'Iconic product' must be linked to the 'Era or Movement'.
- Your quality of written communication will be assessed in Question 4(a) which is marked with an asterisk (*).
- This document consists of **16** pages. Any blank pages are indicated.

Answer **all** the questions.

SECTION A

You are advised to spend 45 minutes on this section.

1 Fig. 1 shows a saucepan.

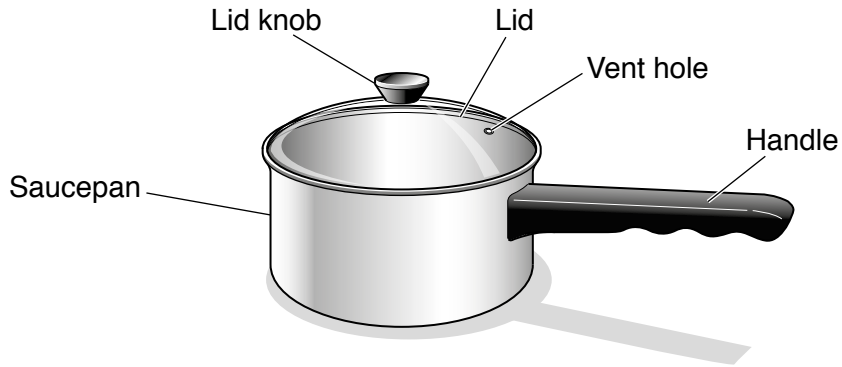


Fig. 1

(a) Give **three** design requirements of a saucepan.

- 1
- 2
- 3

[3]

(b) (i) The saucepan is made from different materials.

Tick (✓) the most suitable material property for the parts of the saucepan.

	Material property	
	Heat resistant	Heat conductor
Handle		
Lid knob		
Saucepan		

[3]

(ii) Give **one** safety benefit, to the user, of a plastic handle on the saucepan.

-
- **[1]**

(c) One way a company can lower the cost of making products is by reducing the workforce.

Describe **other** ways that companies can reduce their costs when making products.

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..... [3]

2 Fig. 2 shows a mobility scooter.

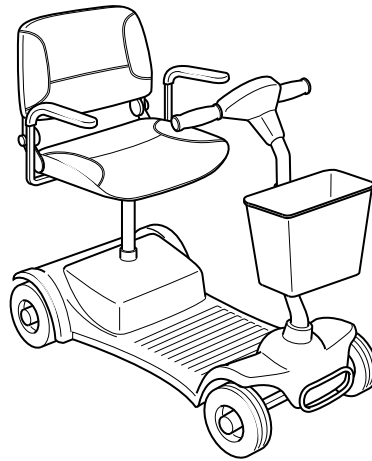


Fig. 2

(a) Mobility scooters can help disabled people in their daily lives.

Give **three** features of a mobility scooter that makes it easy to use.

- 1
- 2
- 3

[3]

(b) Mobility scooters have to be designed to fit a range of different people.

(i) Give **one** specific anthropometric measurement that could be used to ensure that a mobility scooter fits the user.

.....
..... [1]

(ii) Give **one** feature of a mobility scooter that ensures the **comfort** of the user.

.....
..... [1]

(c) Explain how the size of wheels benefits the user.

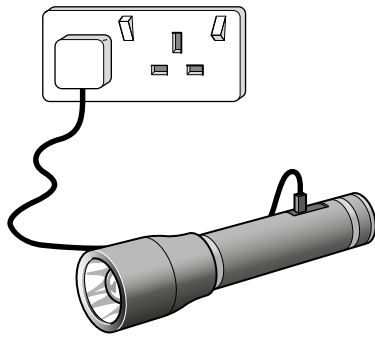
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..... [2]

(d) Inclusive design tries to meet the diverse needs of as many people as possible. This is done by designing or adapting products in a way that makes them useable by a wide range of users.

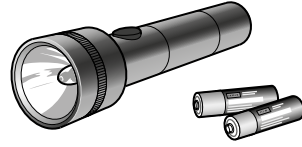
Using **one** example of an inclusive designed product, explain how the product has been adapted to meet the needs of a wide range of people.

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.....
.....
.....
.....
..... [3]

3 Fig. 3 shows two ways of powering a torch.



Rechargeable battery torch



Disposable battery torch

Fig. 3

(a) The demand for electronic products that can be recharged is increasing.

Give **three** advantages of a rechargeable battery torch that benefit the user.

- 1
-
- 2
-
- 3
-

[3]

(b) Rechargeable electronic products are generally more expensive to make.

Give **two** factors other than cost that affect the design and manufacture of rechargeable electronic products.

- 1
-
- 2
-

[2]

- (c) The electrical energy required to charge electronic products can be produced by using environmentally friendly methods.

Give **one** environmentally friendly method of producing electrical energy and explain how the energy is collected.

Environmentally friendly method

Explanation of how the energy is collected

.....
.....

[2]

- (d) To appeal to a wider market, manufacturers often make claims about eco-friendly aspects of the design and of the manufacture of their products.

Explain how manufacturers can improve the eco-footprint of their products.

.....
.....
.....
.....
.....
.....
..... [3]

(b) The table below shows the iconic products for this examination.

Era or movement	Iconic product
2010s to present	Motivation – Multisport Wheelchair
1970s to present	LED Automotive lamps
1950s to present	Avant-garde – Space age dresses
1950s to present	Children’s pop-up books
1980s to present	Green smoothies

Select **one** iconic product from the table above.

Iconic product chosen

Give **two** reasons why the product you have chosen has been so influential.

You must justify each answer.

1

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2

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[4]

5 This question draws upon the research you carried out as part of your examination preparation.

You will need to:

- write a specification
- produce a range of initial ideas
- develop **one** idea
- evaluate your final proposal.

Five different design needs are given below.

Indicate, using a tick (✓), **one** design need you are going to consider.

Design need	✓
A child’s push toy that helps children develop balance and walking skills	
A full colour LED changeable window display for a mobile phone shop	
An avant-garde uniform for the service staff at a futuristic space themed restaurant	
A pop-up information leaflet promoting a new children’s book about animals	
A vegan ‘meal deal’ for a leading supermarket appealing to all customers	

(a) Identify four important design specification points for the design need you have chosen to consider.

These must specify key design requirements other than those detailed in the design need above.

1

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2

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3

.....

4

.....

[4]

(b) Use sketches and notes to produce a range of initial ideas that meet your specification.

[6]

(c) Use sketches and notes to develop **one** of your initial ideas to meet the original design need.

Give details of materials and construction.

[6]

ADDITIONAL ANSWER SPACE

If additional space is required, you should use the following lined page(s). The question number(s) must be clearly shown in the margin(s).

A large area of lined paper for writing. It consists of a vertical solid line on the left side, creating a margin. To the right of this line, there are numerous horizontal dotted lines spaced evenly down the page, providing a guide for handwriting.

A large rectangular area with a solid vertical line on the left side and horizontal dotted lines extending across the page, providing a space for writing answers.



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