

OXFORD CAMBRIDGE AND RSA EXAMINATIONS
GCSE

A554/01

DESIGN AND TECHNOLOGY

Product Design

Designing Influences

MONDAY 22 JUNE 2015: Morning

DURATION: 1 hour 30 minutes
plus your additional time allowance

MODIFIED ENLARGED

Candidate forename		Candidate surname	
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Centre number						Candidate number				
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Candidates answer on the Question Paper.

OCR SUPPLIED MATERIALS:

None

OTHER MATERIALS REQUIRED:

None

READ INSTRUCTIONS OVERLEAF

INSTRUCTIONS TO CANDIDATES

Write your name, centre number and candidate number in the boxes on the first page. 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 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. Additional paper may be used if necessary but you must clearly show your candidate number, centre number and question number(s).

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 questions marked with an asterisk (*).

Any blank pages are indicated.

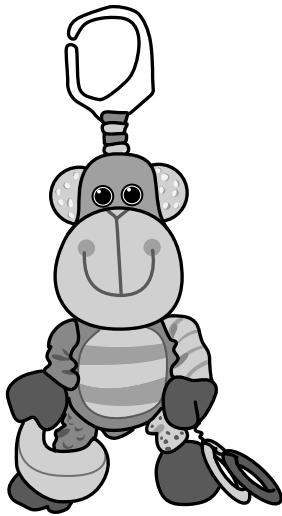
Answer ALL the questions.

SECTION A

You are advised to spend 45 minutes on this section.

1 Fig. 1 shows a child's soft toy.

FIG. 1



(a) Give THREE design requirements of a child's soft toy.

1 _____

2 _____

3 _____

[3]

(b) Describe TWO ways in which anthropometric measurements could be used when designing toys for children.

1 _____

2 _____

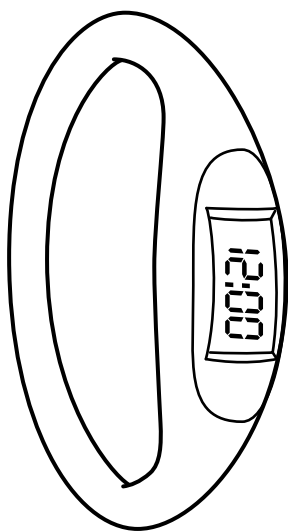
[4]

(c) Explain the role of the British Standards Institution (BSI) in ensuring that toys are safe for use.

[3]

- 2 Fig. 2 shows a digital sports watch that uses a smart material.**

FIG. 2



- (a) Give TWO reasons why digital sports watches are popular. You must justify each answer.**

1 _____

2 _____

[4]

- (b) (i) The strap of the digital sports watch shown in Fig. 2 contains a phosphorescent pigment.**

State the effect this will have on the product.

_____ [1]

- (ii) Identify ONE other smart material and give an example of its use.**

_____ [2]

- (c) The digital watch shown in Fig. 2 has non-replaceable parts.**

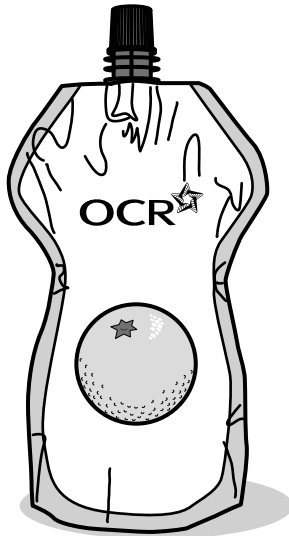
Discuss the issues of products with parts that cannot be replaced.

_____ [3]

- 3 Fig. 3 shows the packaging of a modern soft drink and the packaging of a soft drink from the 1950s.

FIG. 3

**modern soft
drink packaging**



**soft drink packaging
from the 1950s**



- (a) The design of soft drinks packaging has changed over time.

Give THREE design features of modern soft drinks packaging that benefit the consumer.

1 _____

2 _____

3 _____

[3]

(b) Explain TWO ways in which design features of the modern packaging benefit soft drinks manufacturers.

1 _____

2 _____

[4]

(c) Explain why packaging is important in the marketing of new products.

[3]

SECTION B

You are advised to spend 45 minutes on this section.

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

- 4 The table below shows the eras and trend setters for this examination.

ERA OR MOVEMENT	TREND SETTER
1940s to present	Robin Day
1960s to present	Otl Aicher
1970s to present	Microprocessors
1900s to present	Canned food products
1990s to present	Luella Bartley

- (a)* Select ONE trend setter from the table above.

Trend setter chosen _____

Explain why this trend setter has been so influential.

[6]

[illegible]

The table below shows the iconic products for this examination.

ERA OR MOVEMENT	ICONIC PRODUCT
1940s to present	Polypropylene Stacking Chair
1960s to present	Pictograms – 1972 Olympics
1970s to present	Intel 4004 4-bit central processing unit
1900s to present	SPAM
1990s to present	Gisele Bag

(b) Select ONE iconic product from the table opposite.

Iconic product chosen _____

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

You must justify each answer.

1 _____

2 _____

[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

give details of the final proposal.

Five different design needs are given below.

Please indicate using a tick [✓] ONE design need you are going to consider.

DESIGN NEED	✓
A piece of furniture in the style of Robin Day for a children's nursery	
A sign in the style of Otl Aicher for a school design and technology department	
An automatic control system for a greenhouse	
A nutritionally balanced hot school meal using SPAM	
A school bag for 14 to 16 year olds in the style of Luella Bartley	

(a) Identify FOUR important design specification points for your chosen design need.

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

1 _____

2 _____

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]

[illegible]

END OF QUESTION PAPER

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