

# SAMPLE PRODUCT DESIGN

# GCSE EXAMINATION PAPER

**CENTRE NUMBER**

--	--	--	--	--

**CANDIDATE NUMBER**

--	--	--	--

**SAMPLE PAPER 2**

**SURNAME**

\_\_\_\_\_

**FORENAME(S)**

\_\_\_\_\_

**CANDIDATE SIGNATURE**

\_\_\_\_\_

## **2 HOURS ALLOWED**

### **Materials required for this examination:**

- normal writing and drawing instruments
- a calculator
- a protractor.

### **Instructions to candidates:**

- Use black ink or black ball-point pen. Use pencil only for drawing.
- Fill in the boxes at the top of this page.
- Answer **all** questions.
- You must answer the questions in the spaces provided. Do not write on blank pages.
- Do all rough work in this book. Cross through any work that you do not want to be marked.

### **Information**

- The marks for questions are shown in brackets.
- The maximum mark for this paper is 123.
- The question in Section A relates to the context referred to in the Preliminary Material that was previously issued.
- All dimensions are given in millimetres unless otherwise stated.
- You are reminded of the need for good English and clear presentation in your answers.

This example examination paper can be duplicated and printed out if required but not edited in any way.

The links to [www.technologystudent.com](http://www.technologystudent.com) cannot be removed.

The PDF file can be stored on school / college systems and distributed electronically (NO EDITING ALLOWED)

PLEASE RESPECT THE COPYRIGHT - report infringers to [techteacher@technologystudent.com](mailto:techteacher@technologystudent.com)  
Not be distributed at courses or by course instructors / consultants

## SECTION A

This question is about designing.

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

People take part in a range of leisure activities. Food and drink is required for lunch time and there is a need for a suitable DISPOSABLE carrier.

### LEISURE ACTIVITIES



1a. A product analysis for designing a DESPOSABLE food carrier involves, investigating a range of points.

Complete the diagram below.

One of the points has been completed for you. 3 X 2 marks

**COST**

---

---

---

**LIFE CYCLE**

CORRUGATED CARD

POLYETHYLENE

POLYVINYLCHLORIDE

**PRODUCT ANALYSIS**

**FUNCTIONS AND FEATURES**

---

---

---

**SYMBOLS**

---

---

---

## SECTION A

This question is about designing.

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

People take part in a range of leisure activities. Food and drink is required for lunch time and there is a need for a suitable DISPOSABLE carrier.

### LEISURE ACTIVITIES



1a. A product analysis for designing a DESPOSABLE food carrier involves, investigating a range of points.

Complete the diagram below.

One of the points has been completed for you. 3 X 2 marks

#### **COST**

CHEAP TO MANUFACTURE

CHEAP TO PURCHASE

MUST PROVIDE A PROFIT

#### **LIFE CYCLE**

SHORT LIFE CYCLE

SUSTAINABLE MATERIALS

COMPOSTABLE, IF REQUIRED

### **PRODUCT ANALYSIS**

#### **FUNCTIONS AND FEATURES**

EASY TO FOLD INTO A FORM

PROTECTS THE CONTENTS

HAS INTERNAL COMPARTMENTS

#### **SYMBOLS**

RECYCLING SYMBOL

MATERIALS SYMBOL

SUSTAINABLE SOURCE

**1b. You are to design a DISPOSABLE food carrier to contain and protect its contents. The carrier will be used by people who enjoy participating in leisure activities and need to carry a meal / lunch with them.**

In the space below, use notes and sketches to design a disposable food carrier for leisure activities.

Marks will be given for:

- an original outcome
- details regarding the use of materials and the techniques and processes required for its manufacture.
- health and safety considerations and functionality.
- the level of communication and presentation.

## **15 marks**

*Follow link to a detailed sample answer*

*0-5 marks - for a basic answer. Must include some sketch / sketches*

*6 - 10 marks - Reasonable notes and sketch / sketches - must shown some development of the idea.*

*11-15 marks - detailed sketches and notes leading to an original design.*

**1c. Evaluate your design and its suitability as a disposable food carrier, for people taking part in leisure activities. 4 marks**

*See sample points on the next page.*

*1 mark for each relevant point included.*

*Teacher to use discretion.*

**1d. Your product is to be manufactured through continuous production. What is continuous production and why is it suitable for your product? 4 marks**

TO HELP YOU ANSWER  
THIS QUESTION

<http://www.technologystudent.com/joints/scalep1.htm>

[http://www.technologystudent.com/joints/revcard\\_contp1.html](http://www.technologystudent.com/joints/revcard_contp1.html)

*Follow the links to examples of each system of production.*

*1 mark for relevant fact regarding continuous production.*

*1-2 marks for basic understanding.*

*3-4 marks for more detailed understanding.*

**1c. Evaluate your design and its suitability as a disposable food carrier, for people taking part in leisure activities. 4 marks**

**MATERIALS:** The carrier is lightweight and yet provides a level of strength, adequate for a single use. The materials are recyclable and if thrown away into the environment, will decay in a relatively short time scale, without damaging the surrounding soil/ land.

**MANUFACTURING:** The carrier can be manufactured through die cutting and environmentally friendly inks can be used for any printing on its surface. UV varnish will provide some protection against moisture / rain.

**COST:** The carrier is cheap to produce, especially if manufactured as a batch or even through continuous production methods.

**HANDLE AND NET:** The handle allows the food carrier to be carried effectively. The net is folded to give a suitable three dimensional shape. Inserts are added separately and are also environmentally friendly.

**FEATURES AND FUNCTIONS:** It has an effective handle and three dimensional shape. It is easy to fold and 'collapse' after use. It can be recycled. The corrugated card protects the contents. It is stackable when folded as a carrier and when a net/development.

TO HELP YOU ANSWER  
THIS QUESTION

[http://www.technologystudent.com/prddes\\_2/carrier18.html](http://www.technologystudent.com/prddes_2/carrier18.html)

**1e. Describe the life cycle of your disposable food carrier? 4 marks**

*Follow the link to an example of life cycle of corrugated card.*

*1-2 marks - basic concept of life cycle understood.*

*3-4 marks for more detailed understanding of life cycle.*

## Section B

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

This question is focussed on materials and also symbols.

TO HELP YOU ANSWER  
THIS QUESTION

<http://www.technologystudent.com/despro2/drink7.htm>  
<http://www.technologystudent.com/despro2/drink14.htm>

2a. Three packaging symbols are seen below. Complete the table by adding the symbol letter to the correct description. **3 marks**

A



B



C



LETTER	DESCRIPTION
C	Normally seen on the packaging of fragile products. It means that the package and its contents need handling with care.
A	It is there to remind people to place their rubbish in a rubbish bin rather than dropping it on the floor. It is also aimed at making people aware that they have a responsibility to keep the environment around them tidy and litter free.
B	The product inside has been tested to British safety standards. This symbol is normally applied to non-food products such as electronic products or toys.

TO HELP YOU ANSWER  
THIS QUESTION

<http://www.technologystudent.com/joints/pet1.html>

<http://www.technologystudent.com/joints/pety2.html>

**2b. The products shown below are manufactured from POLYETHYLENE TEREPHTHALATE, PET, PETE, (POLYESTER).**



**Write two reasons why this type of material is suitable for the products above. 2 marks**

REASON 1:

*Follow the link for a detailed answer.*

*1 mark for basic answer.*

*2 marks for more detailed understanding.*

REASON 2:

**2c. The clothing is manufactured from nylon.  
Write two reasons why this material is  
suitable. 2 marks**



TO HELP YOU ANSWER THIS QUESTION

[http://www.technologystudent.com/joints\\_flesh/nylon1.html](http://www.technologystudent.com/joints_flesh/nylon1.html)

REASON 1:

*Follow the link for a detailed answer.*

*1 mark for basic answer.*

*2 marks for more detailed understanding.*

REASON 2:

TO HELP YOU ANSWER  
THIS QUESTION

<http://www.technologystudent.com/joints/polyurethane2.html>

2d. The products shown below are manufactured from POLYURETHANE. Write two reasons why this material is suitable. 2 marks



REASON 1:

*Follow the link for a detailed answer.*

*1 mark for basic answer.*

*2 marks for more detailed understanding.*

REASON 2:

TO HELP YOU ANSWER  
2e and 2f

<http://www.technologystudent.com/joints/kevlar1.html>  
<http://www.technologystudent.com/joints/kevlar2.html>

**2e. What is Kevlar ® ? Include in your answer, the name of the company that developed it. 3 marks**

*1 mark - only basic understanding of the nature of kevlar ® . No mention of DuPont.*

*2-3 marks - understanding of Kevlar ® and Dupont mentioned.*

**2f. Give two examples of the practical application of kevlar. 3 marks**

*1 mark for each practical application.*

*Extra mark at the discretion of the teacher - awarded for the level of understanding shown.*

*Follow link for practical applications.*

**3. This question is concerned barcodes**

TO HELP YOU ANSWER  
THIS QUESTION

<http://www.technologystudent.com/prddes1/barcode1.html>

**3a. What is a barcode? 2 marks**

*Follow link for detailed answer.*

*1-2 marks according to level of detail and understanding.*

TO HELP YOU ANSWER  
THIS QUESTION

[http://www.technologystudent.com/despro\\_flash/barcode1.html](http://www.technologystudent.com/despro_flash/barcode1.html)

**How useful are barcodes at the check out of a supermarket? 2 marks**

*1 mark per relevant example given.*

*Follow link for detailed information.*

3b. Barcodes are usually very straightforward, being composed on a series of vertical lines and numbers. However, the presentation of barcodes can be improved by adding appropriate images and colour. An example is shown below.

This barcode has been designed for a florist. Grass and wild flowers have been added to the basic barcode, so that it fits in with the shop's theme.



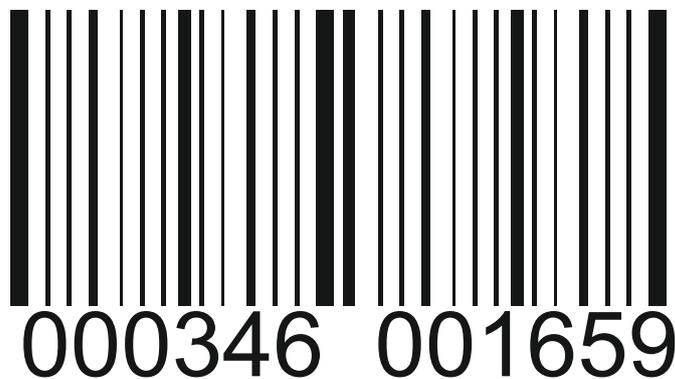
The owner of a local shop selling children's toys, has asked you to design a suitable pictorial barcode.

On / around the barcode below, add suitable sketches, with colour. The mood board on the next page, may be helpful. *6 marks*

*1 -2 marks for a basic design with no colour scheme.*

*3-4 marks for a more detailed design - must have some colour applied.*

*5-6 marks for a well presented drawing(s), with colour that enhances the final design.*





#### 4. This question relates to environmental issues

#### 4a. Explain each of the following environmental terms. 3 x 2 marks

TO HELP YOU ANSWER  
THIS QUESTION

<http://www.technologystudent.com/prddes1/downcyc1.html>

#### **Downcycling:**

*Follow the link for detailed answers*

*1 mark - one relevant comment / fact.*

*2 marks - two relevant comments / facts.*

TO HELP YOU ANSWER  
THIS QUESTION

<http://www.technologystudent.com/prddes1/closedloop1.html>

#### **Closed Loop Recycling:**

*Follow the link for detailed answers*

*1 mark - one relevant comment / fact.*

*2 marks - two relevant comments / facts.*

TO HELP YOU ANSWER  
THIS QUESTION

<http://www.technologystudent.com/prddes1/envirmod1.html>

#### **Environmental Modernism:**

*Follow the link for detailed answers*

*1 mark - one relevant comment / fact.*

*2 marks - two relevant comments / facts.*

TO HELP YOU ANSWER  
THIS QUESTION

<http://www.technologystudent.com/prddes1/advert1.html>  
<http://www.technologystudent.com/prddes1/advert2.html>

**5a. Name a typical method of advertising. 1 mark**

*To gain a mark a typical method must be named - follow link for examples.*

**5b. Name a product that has been sold successfully, as a result of the type of advertising you named above. 1 mark**

*To gain a mark a relevant product must be named - teacher discretion regarding the product.*

**5c. Describe how this type of advertising encouraged consumers to buy your named product. 4 marks**

*Follow the links for detailed information / answers*

*1 mark awarded per relevant fact / point. Maximum of 4 marks,*

**5d. What is the purpose of advertising? (What is advertising?) 4 marks**

*Follow the links for detailed information / answers*

*1 mark awarded per relevant fact / point. Maximum of 4 marks,*

**6. This set of questions is concerned with production methods.**

TO HELP YOU ANSWER  
THIS QUESTION

<http://www.technologystudent.com/joints/scalep1.htm>

[http://www.technologystudent.com/joints/revcard\\_contp1.html](http://www.technologystudent.com/joints/revcard_contp1.html)

[http://www.technologystudent.com/joints/rev\\_batch1.html](http://www.technologystudent.com/joints/rev_batch1.html)

**6a. What is the difference between Continuous Production and Batch Production? Include an example of a product manufactured by each system. 4 marks**

*Follow the links for relevant detailed about both systems of manufacture.*

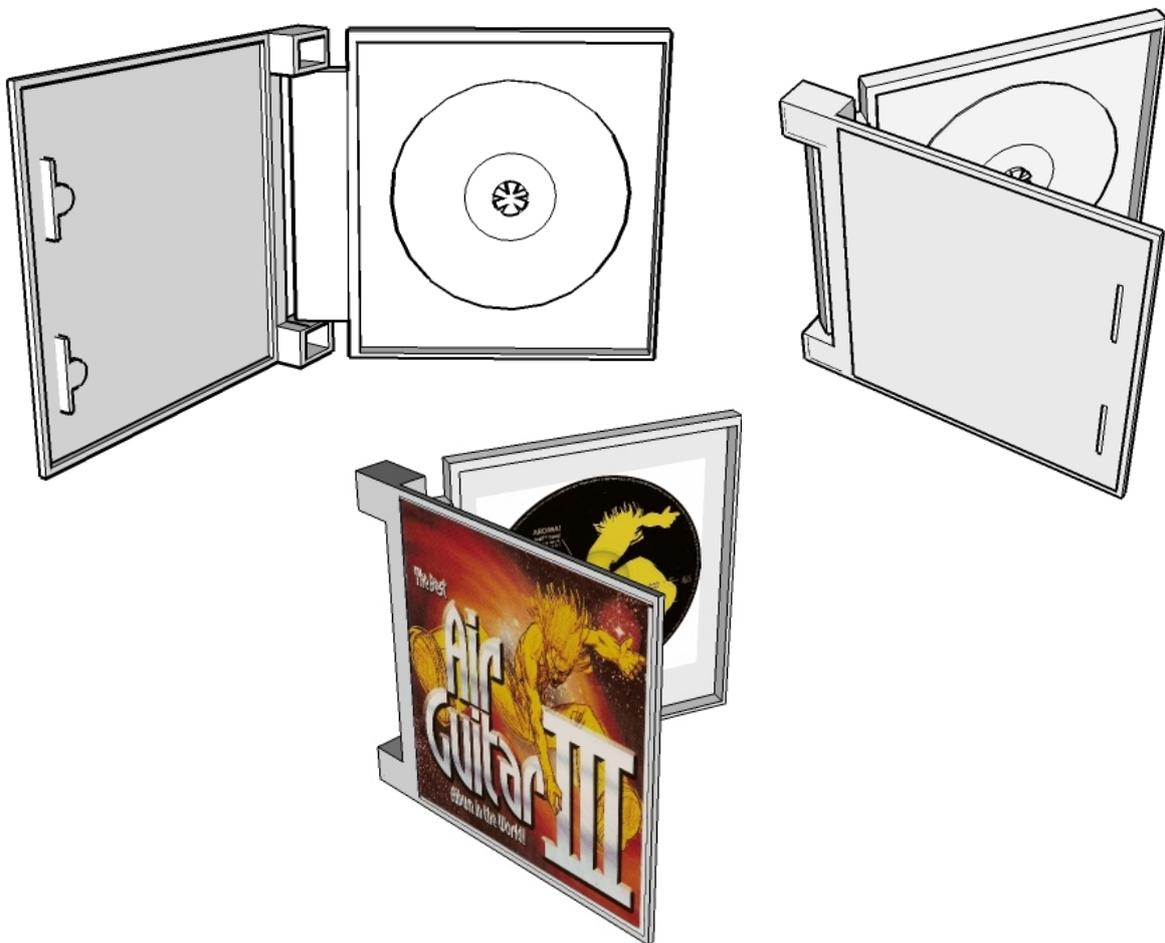
*1 mark awarded for each correct fact / point.*

TO HELP YOU ANSWER  
THIS QUESTION

<http://www.technologystudent.com/grp08/case1.html>  
<http://www.technologystudent.com/grp08/manu1.html>  
<http://www.technologystudent.com/grp08/prnt1.html>  
<http://www.technologystudent.com/grp08/pack1.html>

**6b. The image below shows a design for a case/packaging for a Music CD ROM.**

**Add notes and sketches to give relevant details about the suitable materials, manufacturing and finishing processes. 6 marks**



*See the links above for detailed information / answers*

*1- 2 marks for a basic answer with simple notes / labels only and/or a labelled sketch.*

*3-4 marks - for more detailed notes and sketch.*

*4-6 marks for increased level of detail and level of communication.*

TO HELP YOU ANSWER  
THIS QUESTION

<http://www.technologystudent.com/designpro/prtpro4.htm>

**6c. The printing on the surface of Music CDs is through a process called screen printing. What is screen printing? Use notes and sketches.**

**3 marks**

*Follow the link for detailed answer and sample sketch.*

*1 mark for just notes / sketch and limited detail.*

*2-3 marks for a sketch and notes - teacher discretion with regards to the level of detail.*

TO HELP YOU ANSWER  
THIS QUESTION

<http://www.technologystudent.com/prddes1/qual1.html>

**6d. The manufacturing the music CD packaging goes through a process called Quality Assurance.**

**What is Quality Assurance ? 4 marks**

*Follow the link for a detailed answer.*

*1 mark per relevant point.*

**6e. The manufacture of the packaging for the music CD ROM, involves the tessellation of the packaging material surface. What is a tessellation? Use notes and a sketch in your answer. 3 marks**

TO HELP YOU ANSWER THIS QUESTION <http://www.technologystudent.com/prddes1/perfpk16.html>

---

---

---

---

*Follow the link for a detailed answer / information.*

*Award 1 mark for written answer if correct.*

*Up to two additional marks for sketch, depending on the level of detail.*

TO HELP YOU ANSWER  
THIS QUESTION

[http://www.technologystudent.com/despro\\_flash/foilblk1.html](http://www.technologystudent.com/despro_flash/foilblk1.html)

**6f. To add a feel of quality to the packaging of the music CD ROM, it is to under go the process of foil blocking. In the space below, explain the process of Foil Blocking. Use notes and a sketch(s) 8 marks**

*Follow the link for a detail sheet on foil blocking.*

*1-2 marks for a simplistic answer with only notes or a sketch.*

*3-4 marks for both relevant notes and a sketch, in reasonable detail.*

*5-8 marks for increased detail to both the sketch and notes.*

TO HELP YOU ANSWER  
THIS QUESTION

<http://www.technologystudent.com/despro2/prneff4.htm>  
<http://www.technologystudent.com/despro2/stamp24.htm>

**6g. Sometimes packaging is embossed. What is embossing? *Include notes and a sketch(s)* 4 marks**

*Follow the links for a detailed explanation of embossing*

*1 mark for a simplistic understanding of embossing. Only basic notes or a sketch.*

*2-3 marks for both notes and a sketch - in reasonable detail.*

*4 marks for increased level of detail to both notes and sketch.*

TO HELP YOU ANSWER  
THIS QUESTION

[http://www.technologystudent.com/despro\\_flsh/revise11.html](http://www.technologystudent.com/despro_flsh/revise11.html)

## 7. This set of questions relates to Iconic Designs

**7a. The history of design is 'littered' with iconic designs. Write a criteria list, that helps determine which designs are iconic designs. Criteria number one has already been written for you. 5 marks**

1. A design that sets a bench mark for others to follow.

*Follow the link for more a list of criteria - Iconic Designs*

*1 mark per relevant point / fact.*

TO HELP YOU ANSWER  
THIS QUESTION

[www.technologystudent.com/despro\\_flsh/Designer1.html](http://www.technologystudent.com/despro_flsh/Designer1.html)

**7b. Name an iconic design and explain why you feel it deserves iconic status. Your answer to 7a, may help you answer this question. 6 marks**

*Iconic design must be name for any marks.*

*Follow the link for a sample.*

*Award 1 mark per relevant point / fact.*

TO HELP YOU ANSWER  
THIS QUESTION

<http://www.technologystudent.com/prddes1/ettore1.html>  
<http://www.technologystudent.com/prddes1/ettore2.html>



**Ettore Sottsass was a famous 'Memphis' designer.**

**8a. Name a product designed by Ettore Sottsass. 1 mark**

*Product must be named for a mark. Follow the links for names of products - Teacher discretion required as more products exist than listed on the sample pages.*

**8b. In the space provided, describe the product you have named and include a colour rendered sketch. 5 marks**

*1-2 mark for a very basic set of notes OR a sketch*

*3-4 marks for both notes and a sketch*

*5 marks if notes and sketch are detailed and enhanced with colour.*