

Surname						Other Names					
Centre Number						Candidate Number					
Candidate Signature											

For Examiner's Use

General Certificate of Secondary Education
June 2007

**DESIGN AND TECHNOLOGY
(RESISTANT MATERIALS TECHNOLOGY)
Written Paper
Foundation Tier**

**3545/F
F**



Friday 25 May 2007 9.00 am to 11.00 am

<p>For this paper you must have:</p> <ul style="list-style-type: none"> a pen, a pencil, a ruler, an eraser, a pencil sharpener and coloured pencils an insert of colour photographs (enclosed).

Time allowed: 2 hours

Instructions

- Use blue or black ink or ball-point pen. Use pencil and coloured pencils only for drawing.
- Fill in the boxes at the top of this page.
- Answer **all** questions.
- Answer the questions in the spaces provided.
- Do all rough work in this book. Cross through any work you do not want to be marked.
- Show the working of your calculations.

Information

- The maximum mark for this paper is 125.
- The marks for questions are shown in brackets.
- You are reminded of the need for good English and clear presentation in your answers.

For Examiner's Use			
Question	Mark	Question	Mark
1		9	
2		10	
3			
4			
5			
6			
7			
8			
Total (Column 1) →			
Total (Column 2) →			
TOTAL			
Examiner's Initials			

Questions 1 to 3 on this paper relate to the **Design Brief** given below.

Design Brief

A manufacturer of CD and DVD storage systems wishes to extend its range of products to include computer games storage systems.

You are to produce **three** different design ideas for a computer games storage system.

Examples of typical computer games are shown below.

Due to copyright issues, the examples of two typical computer games have been removed for electronic production.

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

Question 1 is about the Design Specification.

You are advised to spend about 5 minutes on this question.

1 Give **four** design requirements for a computer games storage system.

Explain each of your answers.

An example has been completed for you.

Requirement: The computer games storage system should make it easy to find computer games.

Explanation: People don't want to spend time looking for their favourite computer game.

Requirement 1:

Explanation:

.....
(2 marks)

Requirement 2:

Explanation:

.....
(2 marks)

Requirement 3:

Explanation:

.....
(2 marks)

Requirement 4:

Explanation:

.....
(2 marks)

8

Turn over ►

Question 2 is about design ideas.

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

- 2** Study the information given in the **Design Brief** (page 2) and your **Design Specification** (page 3).

Use this information to help you sketch **three** different design ideas for a computer games storage system.

Add notes to explain each of your design ideas.

Marks will be awarded for:

- three different design ideas, *(3 × 6 marks)*
- quality of sketches, *(6 marks)*
- quality of notes. *(3 marks)*

Design idea 1

Design idea 2

Design idea 3

Turn over ►

Question 3 is about using ICT.

You are advised to spend about 5 minutes on this question.

- 3 (a) Give **three** ways in which ICT could be used when *designing* a computer games storage system.

Explain each of your answers.

An example has been completed for you.

Use: By using a spreadsheet.

Explanation: This could be used to calculate the cost of the materials.

Use 1:

Explanation:

(2 marks)

Use 2:

Explanation:

(2 marks)

Use 3:

Explanation:

(2 marks)

- (b) Give **one** way in which ICT could be used when *making* a computer games storage system.

Explain your answer.

Use:

Explanation:

(2 marks)

Question 4 is about making.

You are advised to spend about 25 minutes on this question.

4 **Figure 1** on the insert of colour photographs shows two designs for a stand for an MP3 player.

Both designs could be made in a school workshop.

Choose **one** of the stand designs.

Chosen stand design:

(a) Name **one** suitable *specific* material which could be used to make your chosen stand design.

Give **one** reason for your choice.

Material:
(2 marks)

Reason:
.....
(1 mark)

Question 4 continues on the next page

Turn over ►

- (b) Use notes and sketches to show clearly how your chosen stand design would be made in a school workshop.

At each stage, name **all** the tools and equipment you would use.

Marks will be awarded for:

- quality of notes and sketches.

(4 marks)

Stage 1: Marking out **or** CAD (computer aided design)

(4 marks)

Stage 2: Cutting and shaping **or** CAM (computer aided manufacture)

(4 marks)

Stage 3: Bending/joining

(4 marks)

Stage 4: Finishing

(2 marks)

21

Turn over ►

Question 5 is about health and safety.

You are advised to spend about 10 minutes on this question.

5 Study the personal safety equipment shown in **Figure 2** on the insert of colour photographs.

Complete the table below by:

- naming the personal safety equipment,
- giving an example of a process where it would be used,
- identifying a hazard it prevents.

An example has been completed for you.

Personal safety equipment	Name	Process	Hazard
A	<i>Ear defenders</i>	<i>When machining a piece of wood</i>	<i>The noise is too loud and could harm your hearing</i>
B			
C			
D			
E			

(12 marks)

Question 6 is about materials and finishes.

You are advised to spend about 10 minutes on this question.

6 Study the remote control holders shown in **Figure 3** on the insert of colour photographs.

(a) Name **one** suitable, *specific* material which could have been used to make each remote control holder.

Give **one** reason for **each** choice.

Remote control holder A

Material:
(2 marks)

Reason:
.....
(1 mark)

Remote control holder B

Material:
(2 marks)

Reason:
.....
(1 mark)

Remote control holder C

Material:
(2 marks)

Reason:
.....
(1 mark)

(b) Name **one** suitable, *specific* finish for each of the chosen materials for **Remote control holder A** and **Remote control holder C**.

Remote control holder A

Finish:
(2 marks)

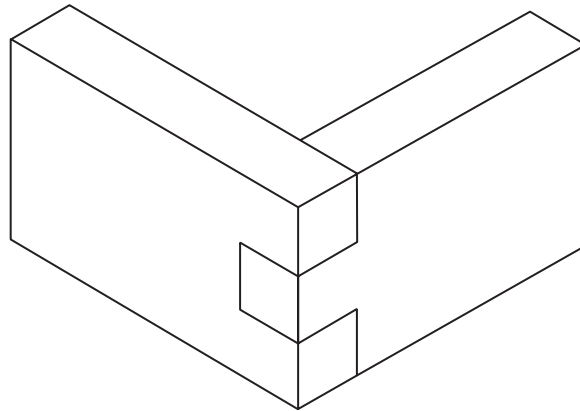
Remote control holder C

Finish:
(2 marks)

Question 7 is about quality control.

You are advised to spend about 15 minutes on this question.

7 Study the drawing of the finger/comb joint shown below.



- (a) Complete the flow chart on the opposite page by placing the following processes in the correct order to make the joint.

Finish

Start

Check the accuracy of the marking out

Mark out the joint

Cut out the joint

Check the accuracy of the fit

Check the joint is square

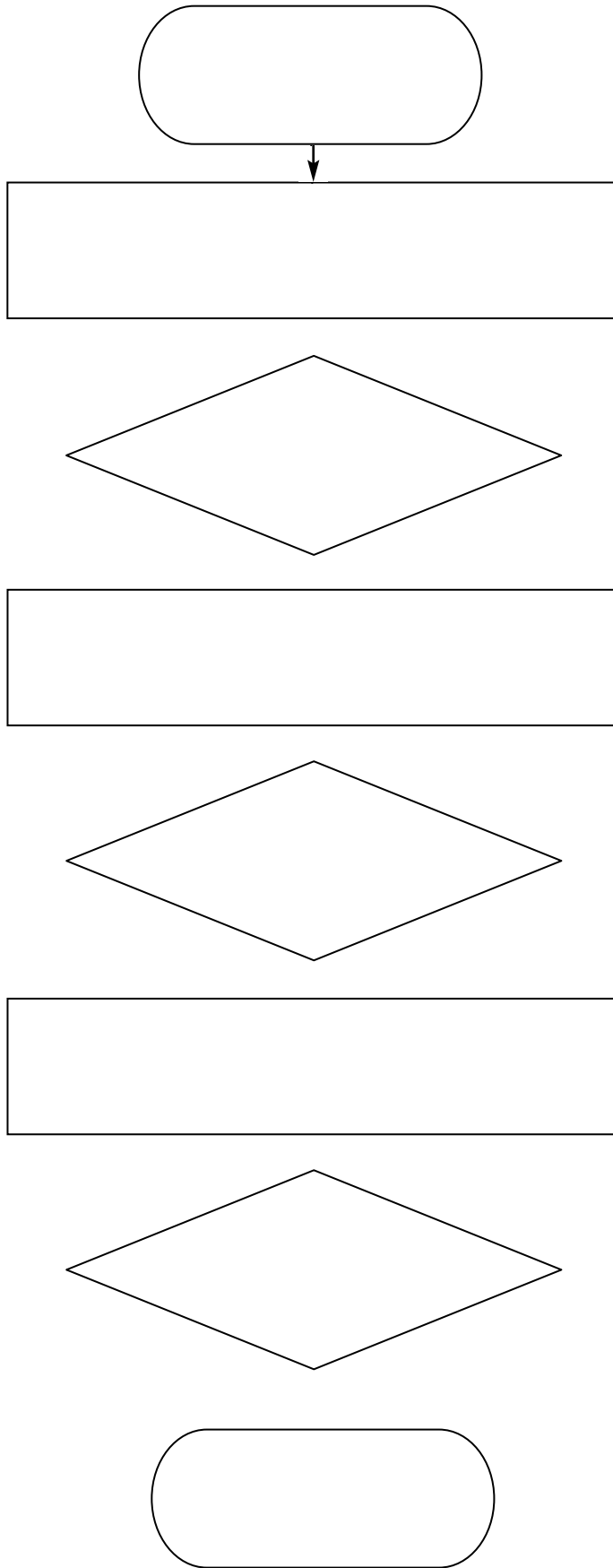
Glue the joint together

(8 marks)

- (b) Add the flow and feedback arrows to the chart.

The first flow arrow has been completed for you.

(4 marks)



Turn over ►

Question 8 is about making.

You are advised to spend about 5 minutes on this question.

8 Study the steel plate and tools shown in **Figure 4** on the insert of colour photographs.

Complete the table below by matching the shape to the correct tool letter.

Name the tool in each case.

Shape	Tool letter	Tool name
1		
2		
3		
4		

(8 marks)

8

Question 9 is about product analysis.

You are advised to spend about 5 minutes on this question.

9 Study the two power drills shown in **Figure 5** on the insert of colour photographs.

(a) Give **two** advantages of using **Drill A** instead of **Drill B**.

Explain each of your answers.

Advantage 1:

Explanation:

.....
(2 marks)

Advantage 2:

Explanation:

.....
(2 marks)

(b) Give **one** disadvantage of using **Drill A** instead of **Drill B**.

Explain your answer.

Disadvantage:

Explanation:

.....
(2 marks)

Turn over for the next question

6

Turn over ►

Question 10 is about marketing and advertising.

You are advised to spend about 10 minutes on this question.

10 (a) Before a product is designed it is useful to carry out market research.

(i) List **three** different methods of carrying out market research.

Method 1:

Method 2:

Method 3:

(3 marks)

(ii) Explain why it is important to carry out market research.

.....

.....

.....

(2 marks)

(b) Once a product has been manufactured it must then be advertised.

(i) List **three** different methods of advertising a product.

Method 1:

Method 2:

Method 3:

(3 marks)

(ii) Explain why it is important to advertise a product.

.....

.....

.....

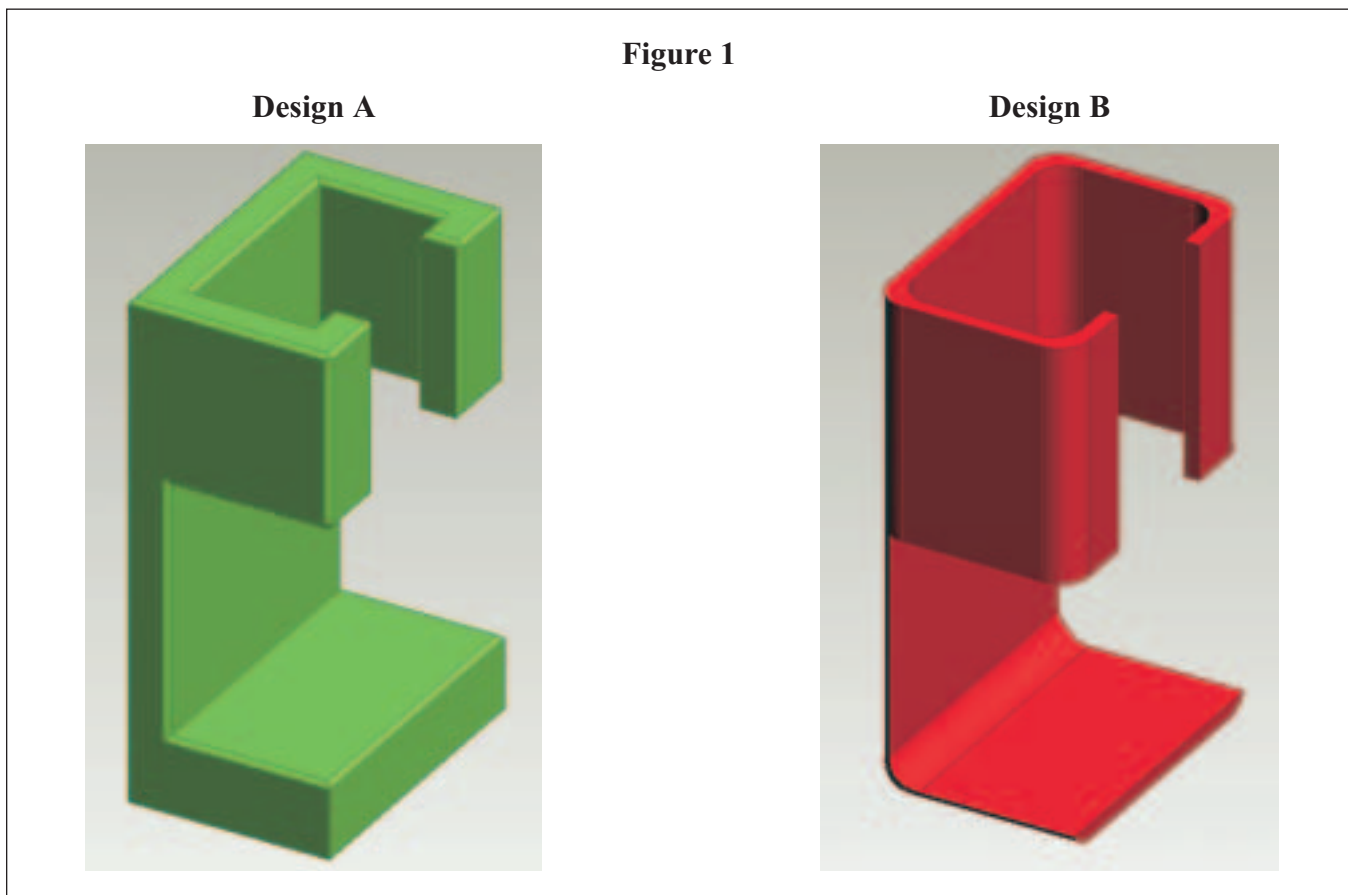
(2 marks)

END OF QUESTIONS

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Insert

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Figure 2

A



B



C



D



E



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Figure 3

Wooden remote control holder

Remote control holder A

Plastic remote control holder

Remote control holder B

Metal remote control holder

Remote control holder C

Due to copyright issues, the examples of two typical computer games have been removed for electronic production.

