

Surname						Other Names					
Centre Number						Candidate Number					
Candidate Signature											

Leave blank
-------------

General Certificate of Secondary Education  
June 2005

**DESIGN AND TECHNOLOGY:  
RESISTANT MATERIALS TECHNOLOGY (SHORT COURSE)**

**3555/H  
H**



**Higher Tier**

Thursday 26 May 2005 9.30 am to 11.00 am

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

- a pen, pencil, ruler, eraser, pencil sharpener and coloured pencils;
- a colour insert sheet (enclosed).

Time allowed: 1 hour 30 minutes

**Instructions**

- Write your name and other details in the spaces provided above.
- Answer **all** the questions in the spaces provided.

**Information**

- The maximum mark for this paper is 100.
- Mark allocations are shown in brackets.
- A colour insert sheet has been provided for use in answering questions in this paper.
- Wherever calculations are needed you should show your working.
- All dimensions are given in millimetres unless otherwise stated.
- You are reminded of the need for good English and clear presentation.

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

Questions 1 to 4 on this paper relate to the Design Brief given below.

### Design brief

A manufacturer of office equipment has asked you to design a *desktop organiser* which incorporates a mobile phone holder.

Examples of the type of stationery which could be stored and a typical mobile phone are shown in **Figure 1** on the insert sheet of colour images.

A black and white copy of **Figure 1** is shown below.



The image which appeared here has not been reproduced due to third-party copyright constraints.

Images reproduced by kind permission of the following companies:

‘Post-it’ is a registered trademark of 3M company  
[www.snowpake.net](http://www.snowpake.net)  
 West Mercia Supplies (WMS) SY3 5HJ  
[www.imation.co.uk](http://www.imation.co.uk)

**Figure 1**

Answer **all** questions in this paper.

**Question 1 is about the design specification.**

**You should spend about 5 minutes on this question.**

**1** Give **four** design requirements of the *desktop organiser*.

Explain each of your answers.

Requirement 1: .....

Explanation: .....

.....

(2 marks)

Requirement 2: .....

Explanation: .....

.....

(2 marks)

Requirement 3: .....

Explanation: .....

.....

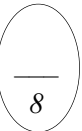
(2 marks)

Requirement 4: .....

Explanation: .....

.....

(2 marks)



**TURN OVER FOR THE NEXT QUESTION**

**Turn over ►**

**Question 2 is about design ideas.**

**You should spend about 30 minutes on this question.**

**2** Study the information given in the **design brief** and your **design specification**.

Use this information to help you sketch **two** different design ideas for a *desktop organiser* which includes a mobile phone holder.

Remember to:

- include the mobile phone holder
- add notes to explain your sketches
- evaluate each idea.

Marks will be awarded for:

- **two** different ideas; *(2 × 6 marks)*
- quality of sketches; *(5 marks)*
- quality of notes; *(3 marks)*
- quality of evaluations. *(2 × 3 marks)*

**Idea 1**

Evaluation: .....

.....

**Idea 2**

Evaluation: .....

.....

26

**TURN OVER FOR THE NEXT QUESTION**

**Turn over ►**

**Question 3 is about designing.**

**You should spend about 5 minutes on this question.**

**3** Before a *desktop organiser* goes into production a prototype would be made.

(a) Explain the term *prototype*.

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

(2 marks)

(b) Explain the *advantages* to the *manufacturer* of making a prototype.

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

(5 marks)

**Question 4 is about the manufacture of your best idea.**

**You should spend about 15 minutes on this question.**

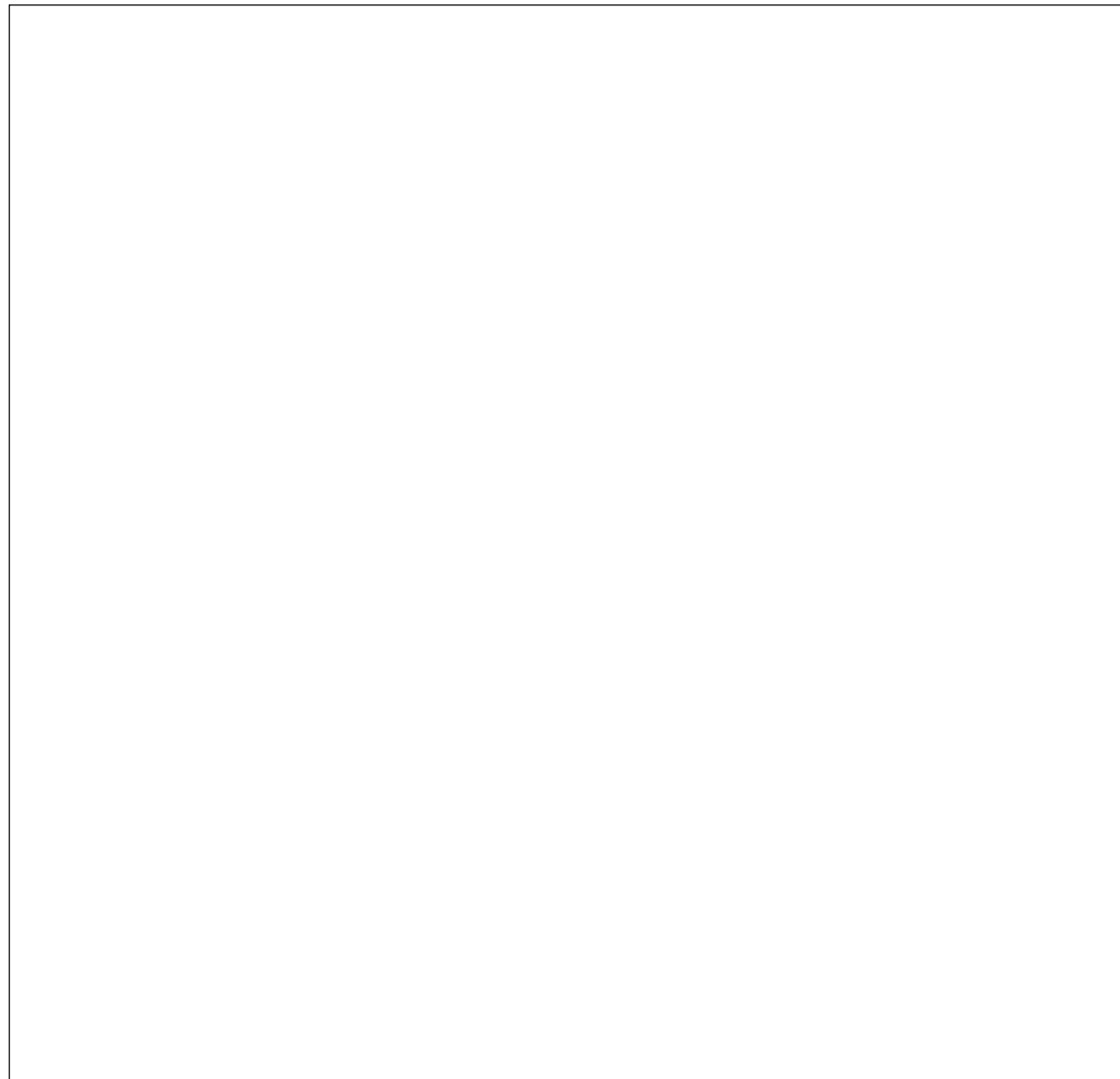
**4** Choose your best design idea from **Question 2**.

Chosen idea: Number .....

Using notes and sketches, clearly show details of the *industrial method of manufacture* which could be used to produce your design in a **batch of 5000**.

Marks will be awarded for:

- suitable method of manufacture; (10 marks)
- quality of sketches; (2 marks)
- quality of notes. (2 marks)



**Question 5 is about health and safety.**

**You should spend about 2 minutes on this question.**

**5** Drilling machines must be regularly maintained to keep them in safe working order.

Name **one** check that is made on a drilling machine to make sure it is in safe working order.

Explain why this check is important.

Check: .....

Explanation: .....

.....

*(2 marks)*





**TURN OVER FOR THE NEXT QUESTION**

**Turn over ►**

Question 6 is about systems and control.

You should spend about 15 minutes on this question.

- 6 (a) Study *the paper punch* and *the pencil sharpener*, shown as **Figure 2**, on the colour insert sheet.

Complete **Table 1**.

	<b>Input</b>	<b>Process</b>	<b>Output</b>
<b>the paper punch</b>			
<b>the pencil sharpener</b>			

**Table 1**

(6 marks)

- (b) Study the chair shown as **Figure 3** on the colour insert sheet.

Describe how the **designer** has resolved the following issues.

Explain each of your answers.

Stability: .....

.....

(1 mark)

Explanation: .....

.....

.....

(2 marks)

Mobility: .....

.....

(1 mark)

Explanation: .....

.....

.....

(2 marks)

Height adjustment: .....  
.....  
(1 mark)

Explanation: .....  
.....  
.....  
(2 marks)

Back rest adjustment: .....  
.....  
(1 mark)

Explanation: .....  
.....  
.....  
(2 marks)

18

**TURN OVER FOR THE NEXT QUESTION**

**Turn over ►**

**Question 7 is about materials and finishes**

**You should spend about 5 minutes on this question**

7 Study the magazine files shown as **Figure 4** on the colour insert sheet.

- (a) Name **one** suitable, *specific* material from which to make each type of magazine file and give **two** reasons for your choice.

**Magazine file A**

Material: ..... (1 mark)

Reason 1: .....

Reason 2: ..... (2 marks)

**Magazine file C**

Material: ..... (1 mark)

Reason 1: .....

Reason 2: ..... (2 marks)

- (b) Choose **one** suitable, *specific* finish for the material you have chosen for **magazine file A**.

**Magazine file A**

Finish: ..... (1 mark)



**Question 8 is about scale of production.**

**You should spend about 8 minutes on this question.**

**8 (a)** Complete **Table 2**, by entering a description of each scale of production.

Name a typical product which is made by this method.

One example has been completed for you.

<b>Scale of Production</b>	<b>Descriptions</b>	<b>Product</b>
<b>One-off production</b>	<i>A single product is made</i>	<i>The Eiffel Tower</i>
<b>Batch production</b>		
<b>Mass production</b>		
<b>Continuous production</b>		

**Table 2**

*(6 marks)*

**(b)** Explain how the scale of production affects the cost of the product.

.....

.....

.....

.....

.....

.....

.....

.....

*(4 marks)*

**Turn over ►**



**THERE ARE NO QUESTIONS PRINTED ON THIS PAGE**

**THERE ARE NO QUESTIONS PRINTED ON THIS PAGE**

Permission to reproduce all copyright material has been applied for. Efforts to contact some copyright owners have been unsuccessful and AQA will be happy to rectify any omissions of acknowledgements in future papers if notified.

Copyright © 2005. AQA and its licensors. All rights reserved.

TP/0205/3555/H







**Figure 2**



**Figure 3**



**A**



**B**



**C**

**Figure 4**

Permission to reproduce all copyright material has been applied for. Efforts to contact some copyright owners have been unsuccessful and AQA will be happy to rectify any omissions of acknowledgements in future papers if notified.