

Surname						Other Names					
Centre Number						Candidate Number					
Candidate Signature											

Leave blank

General Certificate of Secondary Education
June 2005

DESIGN AND TECHNOLOGY: 3555/F
RESISTANT MATERIALS TECHNOLOGY (SHORT COURSE)

Foundation Tier

F



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			
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8			
9			
10			
11			
12			
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 desktop equipment has asked you to design a *desktop organiser*.

Examples of the type of office stationery and equipment which could be stored are shown as **Figure 1** on the colour insert sheet.

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



Figure 1

Images reproduced by kind permission of the following companies:

'Post-it' is a registered trademark of 3M company

www.snowpake.net

West Mercia Supplies (WMS) SY3 5HJ

www.imation.co.uk

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

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.

(An example has been completed for you.)

Example: The desktop organiser should make it easy to find the stationery.

Explanation: This will save a lot of time spent looking for the stationery

Requirement 1:

Explanation:

.....
(2 marks)

Requirement 2:

Explanation:

.....
(2 marks)

Requirement 3:

Explanation:

.....
(2 marks)

Requirement 4:

Explanation:

.....
(2 marks)

Question 2 is about design ideas.

You should spend about 25 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.

Add notes to explain each of your ideas.

Marks will be awarded for:

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

Idea 1

Idea 2

Question 3 is about testing and evaluation.

You should spend about 5 minutes on this question.

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

Chosen idea: Number

(a) Give **two** reasons why you think this is your best idea.

Reason 1:

.....

(1 mark)

Reason 2:

.....

(1 mark)

(b) Describe **two** tests that you would carry out to evaluate your desk tidy *after* it has been made.

Test 1:

.....

.....

(2 marks)

Test 2:

.....

.....

(2 marks)

6

TURN OVER FOR THE NEXT QUESTION

Turn over ►

Question 4 is about making.

You should spend about 25 minutes on this question.

4 Figure 2 shows **two** designs for a note pad holder which could be made in the school workshop.

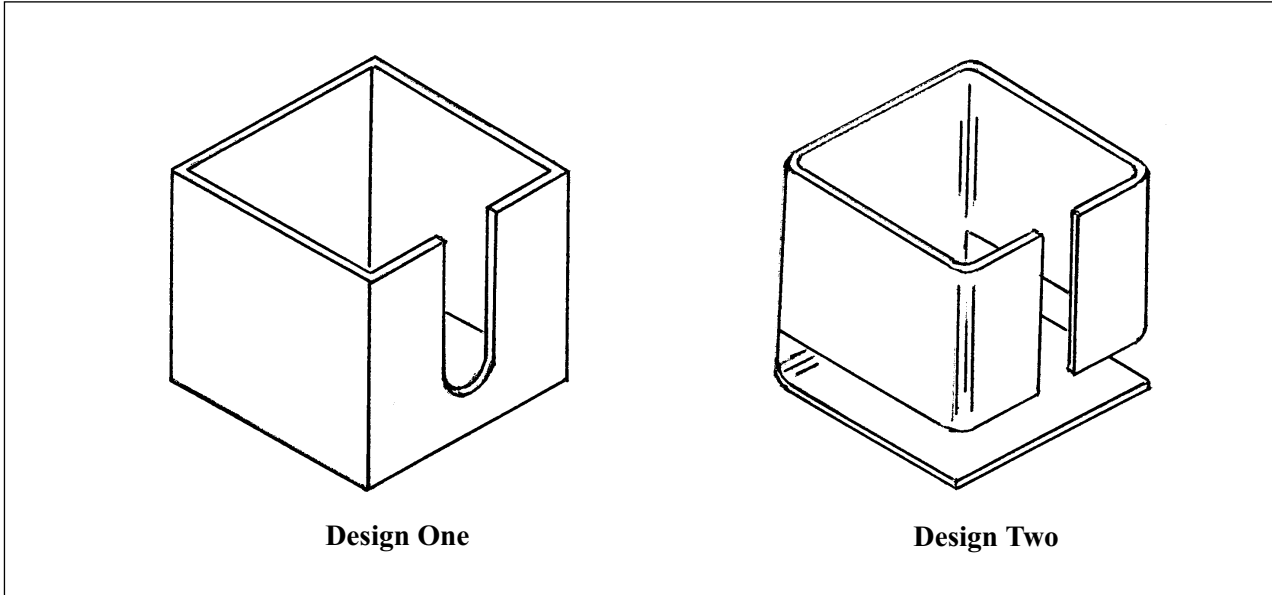


Figure 2

Choose **one** of the designs.

Chosen design:

(a) Name **one** suitable *specific* material from which to make your chosen design and give **one** reason for your choice.

Material: (2 marks)

Reason: (1 mark)

- (b) Using notes and sketches, clearly show how you would *make* your chosen design.

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

(4 marks)

Stage 2: Cutting and shaping

(4 marks)

QUESTION 4 CONTINUES ON THE NEXT PAGE

Turn over ►

Stage 3: Joining/bending

(4 marks)

Stage 4: Finishing

(4 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)

2

TURN OVER FOR THE NEXT QUESTION

Turn over ►

Question 6 is about materials and finishes.

You should spend about 5 minutes on this question.

6 Study the magazine files shown as **Figure 3** on the colour insert sheet.

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

Magazine file A

Material: (2 marks)

Reason:
..... (1 mark)

Magazine file B

Material: (2 marks)

Reason:
..... (1 mark)

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

Magazine file A

Finish: (2 marks)

Question 7 is about systems and control.

You should spend about 4 minutes on this question.

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

(a) Explain why the chair base has five feet.

Explanation:
.....
.....

(2 marks)

(b) (i) Name the part labelled as **Part D**.

Part D:
(1 mark)

(ii) Explain the *advantage* to the *customer* of using this part.

Explanation:
.....
.....

(2 marks)



TURN OVER FOR THE NEXT QUESTION

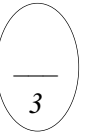
Turn over ►

Question 8 is about systems and control**You should spend about 2 minutes on this question****8** Study the lamp shown as **Figure 5** on the colour insert sheet.

- (a) Name the mechanism labelled as
- Part E**
- .

Mechanism
(1 mark)

- (b) Complete the following sentence.

When the handle is turned around the mechanism shown as **Part E** converts R _ _ _ _ motion
into L _ _ _ _ motion.
(2 marks)

Question 9 is about systems and control.

You should spend about 4 minutes on this question.

- 9 Study *the lamp*, *the paper punch* and *the pencil sharpener*, shown as **Figures 5 and 6** on the colour insert sheet.

Complete **Table 1**.

The lamp example has been done for you.

	Input	Process	Output
the lamp	<i>The handle is turned in a clockwise direction</i>	<i>The mechanism turns</i>	<i>The lamp is clamped to the table.</i>
the paper punch			
the pencil sharpener			

Table 1

(6 marks)

6

TURN OVER FOR THE NEXT QUESTION

Turn over ►

Question 10 is about marking out.

You should spend about 3 minutes on this question

10 Study the tools shown as **Figure 7** on the colour insert sheet.

Complete **Table 2** by matching the correct tool letter with each description.

You may use each tool **once** only.

Description	Tool
Measuring a 50 mm length of nylon rod	
Marking a line parallel to an edge on a piece of wood	
Measuring a 1000 mm width on a sheet of MDF	
Marking a line at right angles to an edge on a piece of wood	

Table 2

(4 marks)

Question 11 is about consumer protection.

You should spend about 5 minutes on this question.

11 Study the list of products shown below:

Electric iron Electric lawn mower

Cycling helmet CD storage tower

(a) Select a product from the list which is most likely to display each of the following symbols.



Product:
(1 mark)



Product:
(1 mark)

(b) Give **two** reasons why a **manufacturer** should use these symbols on their products. Explain each of your answers.

Reason 1:
.....
(1 mark)

Explanation:
.....
(1 mark)

Reason 2:
.....
(1 mark)

Explanation:
.....
(1 mark)

Turn over ►

Question 12 is about product analysis.

You should spend about 5 minutes on this question.

12 Study the two staplers shown as **Figure 8** on the insert sheet of colour images.

(a) Explain why there is a difference in the cost of the two staplers.

Explanation:

.....

.....

.....

(3 marks)

(b) Which of the **two** staplers is the easiest to use?

Stapler Number:

Explain your answer:

.....

.....

.....

(3 marks)

END OF QUESTIONS

6

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

3555/F

F

Foundation Tier

This insert is provided for use in the examination.



Figure 1

This insert page should **not be** sent to the examiner.

Turn over ►



A



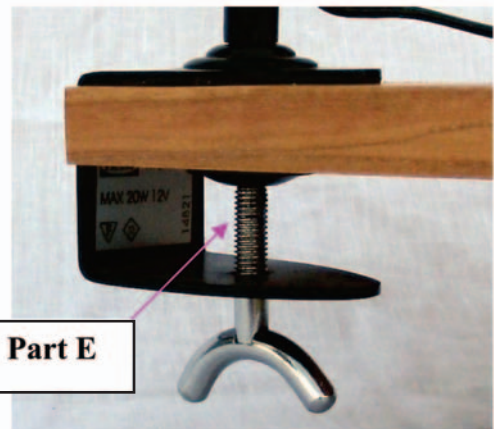
B

Figure 3



Part D

Figure 4



Part E

Figure 5



Figure 6

Figure 7 has not been reproduced here due to third-party copyright constraints.



Stapler 1



Stapler 2

Figure 8

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Figure 3—www.NelsonThornes.com

Figure 7—Screwfix Direct (screwfix.com)