



TONBRIDGE SCHOOL

Specimen paper for entry into Year 12

Design Technology

Time allowed: 60 minutes

Total Marks: 70

Answer ALL the questions in the spaces provided

Further Instructions

- Use blue or black ink.
- Use pencil and coloured pencils only for drawing.
- Do all rough work in this book. Cross through any work you do not want to be marked.
- Show the workings of your calculations.
- You are reminded of the need for good English and clear presentation in your answers.

Question	Mark
1	
2	
3	
4	
5	
TOTAL	

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

READ CAREFULLY THE DESIGN BRIEF BELOW AND ANSWER THE QUESTIONS WHICH FOLLOW.

Design Brief

A manufacturer of luggage wishes to extend their range to include wheeled devices that help with moving and transporting items.

You are to produce **three** different design ideas for a wheeled device that helps with moving and transporting items.

Your designs should focus on the following situations:

Situation 1 a child carrying their toys when going on holiday

Situation 2 a person transporting tools around the garden

Situation 3 a caretaker transporting boxes of paper around school.
This should be as compact as possible when stored.

Question 1 : Design Specification (10 marks)

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

Give **five** design requirements for a wheeled device that helps with moving and transporting items.

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)

Requirement 5:

Explanation:

..... (2 marks)

Question 2 : Design ideas (33 marks)

You are advised to spend about 40 minutes on this question.

Study the information given in the **Design Brief** (page 2) and your **Design Specification** (page 3). Use this information to help you sketch **one** design idea for **each** situation given in the **Design Brief**.

Marks will be awarded for:

- three design ideas (3 × 6 marks)
- quality of sketches (6 marks)
- quality of notes (3 marks)
- quality of evaluations (3 × 2 marks)

Situation 1 : A design that will help a child carrying their toys when going on holiday

Evaluation:

.....

.....

Turn over ►

Situation 2 : A design idea that will help a person transporting tools around the garden

Evaluation:
.....
.....

Situation 3 : a design idea that will help a caretaker transporting boxes of paper around school. This should be as compact as possible when stored. (You will be asked to develop this design in Question 3).

Evaluation:
.....
.....

Question 3 : Systems and Control (10 marks)

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

Your design from **Situation 3** (Question 2) is required to be as compact as possible when stored.

Use notes and sketches to show details of how this will be achieved.

Marks will be awarded for:

- clarity of sketching *(5 marks)*
- quality of notes *(5 marks)*

Turn over ►

Question 4 : Materials (6 Marks)

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

Study the containers shown below.

Name **one** suitable, *specific* materials which has been used to make each container.

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

Container A



Material.....	(1 mark)
Reason.....	
.....	
	(1 mark)

Container B



Material.....	(1 mark)
Reason.....	
.....	
	(1 mark)

Container C



Material.....	(1 mark)
Reason.....	
.....	
	(1 mark)

Question 5 : Product Analysis (11 marks)

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

Study the two types of cramps shown below.



Advances in material and manufacturing technology have enabled designers to make several improvements to cramping devices.

(a) Identify **three** improved features that **Cramp A** has compared to **Cramp B**.

Explain how each improvement helps the user.

Improvement 1:
(1 mark)

How does it help the user?
.....
.....
(2 marks)

Turn over ►

Improvement 2:.....
(1 mark)

How does it help the user?.....
.....
..... (2 marks)

Improvement 3:.....
(1 mark)

How does it help the user?.....
.....
..... (2 marks)

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

Explain your answer.

Disadvantage:

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

END OF QUESTIONS