TONBRIDGE SCHOOL

Specimen paper for entry into Year 12

Design Technology

Time allowed: 60 minutes

Total Marks: 70

Answer <u>ALL</u> 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 x 6 marks)*
- quality of sketches *(6 marks)*
- quality of notes *(3 marks)*
- quality of evaluations *(3 x 2 marks)*

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

Evaluation: …….

……

……

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)*

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……. *(1mark)*

Reason…… ……..

……..

(1mark)

Container B



Material……. *(1mark)*

Reason…… ……..

……..

(1mark)

Container C



Material……. *(1mark)*

Reason…… ……..

……..

(1mark)

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.

Cramp A



Cramp B



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