

Centre Number						Candidate Number				
Surname										
Other Names										
Candidate Signature										



General Certificate of Secondary Education
Specimen Paper

Engineering

XXXX/W

Unit 1: Written Paper

Date: Time

For this paper you must have:

- a pen, a pencil, a ruler, an eraser, a pencil sharpener and coloured pencils.

Time allowed: 1 Hour

Instructions

- Use black ink or ball - point pen. Use pencil only for drawing.
- Fill in the boxes at the top of this page.
- Answer **all** questions.
- Answer the questions in the space 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 75.
- The marks for questions are shown in brackets.
- The questions in Section A relates to the context referred to in the preparation sheet that was previously issued.
- You are reminded of the need for good English and clear presentation in your answers. Quality of Written Communication will be assessed in question 2 (c).

For Examiner's Use	
Examiner's Initials	
Question	Mark
1	
2	
3	
4	
5	
6	
7	
8	
TOTAL	

XXXX/W

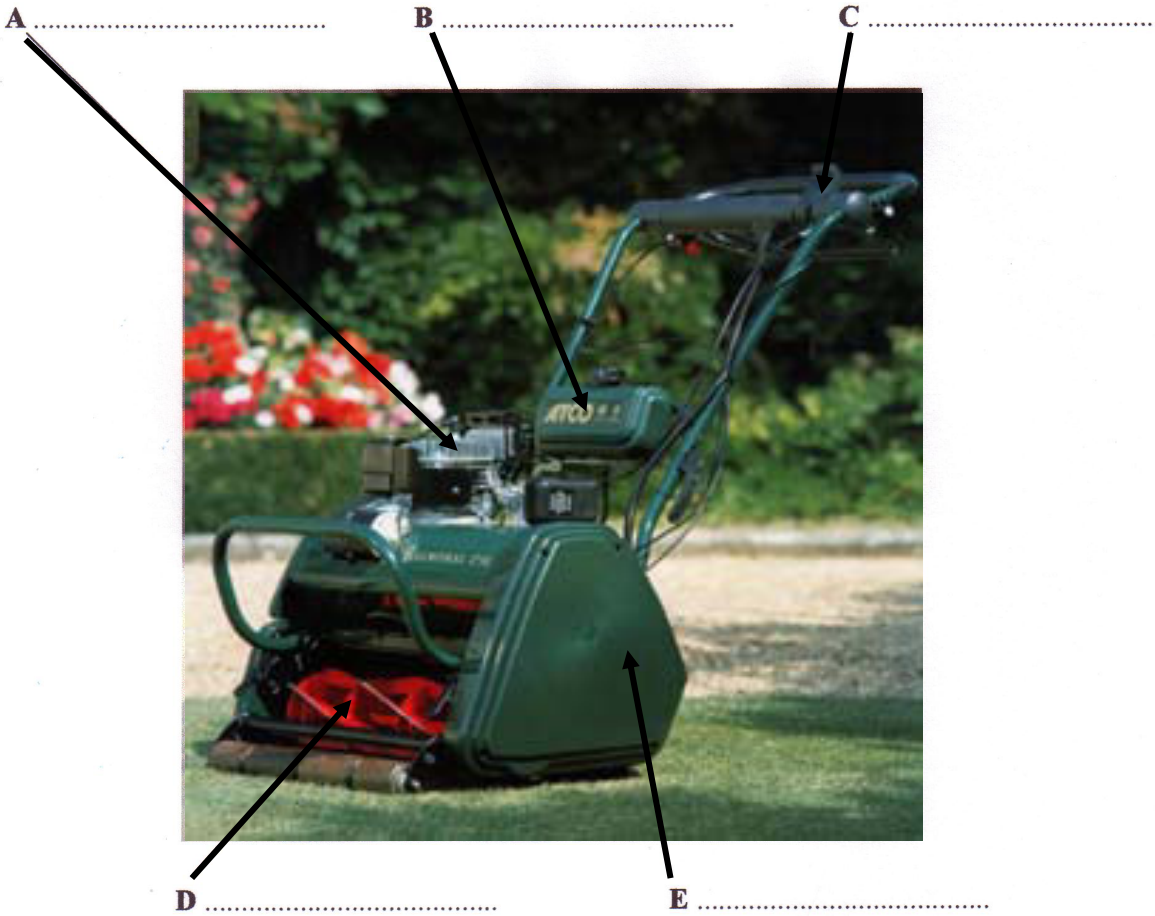
SECTION A

You should answer this question.

1 A photograph of a traditional lawnmower is shown below.

1 (a) Label the **five** main parts of the lawnmower.

Figure 1



Reproduced with the permission of Atco – Qualcast Ltd (Bosch Group)

(5 marks)



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1 (b) State the purpose of the labelled parts B, C and E.

Part B.....

.....

.....

Part C.....

.....

.....

Part E.....

.....

.....

(6 marks)

1 (c) The petrol engine is a major component of this type of lawnmower.

1 (c) (i) State one advantage **and** one disadvantage of this type of lawnmower.

Advantage.....

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.....

Disadvantage.....

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(4 marks)

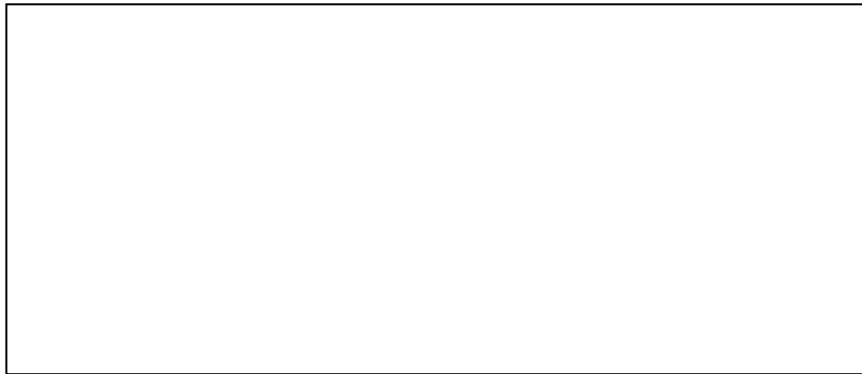
Turn over ►



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1 (c) (ii) Using notes and sketches, briefly explain how the rotating cutter is powered.

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.....



Marks will be awarded for:

- Labels – (1 mark)
- Information conveyed – (4 marks)
- Quality of sketch – (2 marks)

(7 marks)

1 (d) Most of the components of the lawnmower on page 2 are made from low carbon steel (mild steel). Give **two** reasons why this material is suitable.

1.....
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.....
.....
2.....
.....
.....

(4 marks)



2 Technology has enabled different types of lawnmower to be developed. Figure 2 shows a lawnmower which uses new technology.

Figure 2



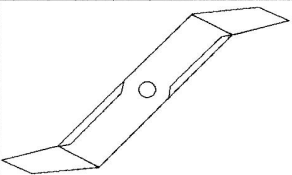
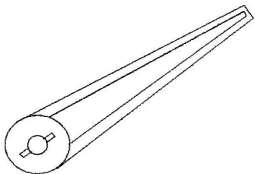
2 (a) Identify **two** ways in which new technology is used in products of this type.

1.....

2.....

(4 marks)

2 (b) This type of lawnmower can be fitted with different types of cutting blades as shown below. Give one advantage, with the reason, for the use of each type of blade.

blade	advantage	reason
 metal blade		
 plastics blade		

Note: drawings are not to scale

(4 marks)

Turn over ►



2 (c) Discuss the health and safety issues for the user of the different types of lawnmower blade.

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(4 marks)

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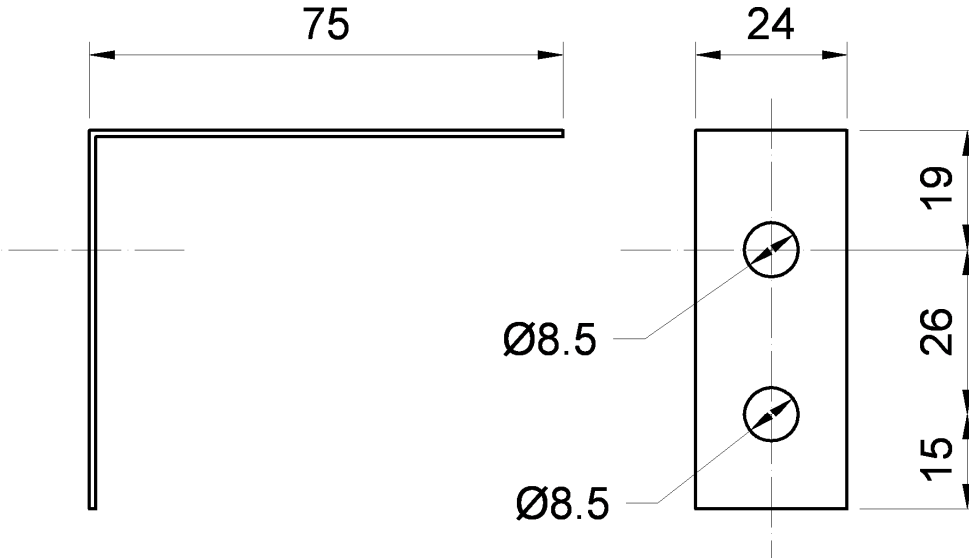


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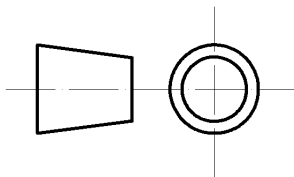
SECTION B

You should answer **all** questions in this section.

3 The drawing below shows a metal bracket. Create a production plan to make a small batch of the bracket.



Bracket



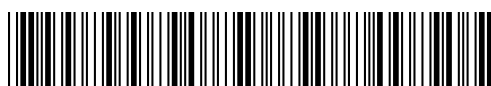
Notes:
 Not to scale
 Material 1mm Sheet steel
 All dimensions plus or minus 0.1mm

3 (a) Fill in the following table to identify four main operations (in the correct order) needed to make the component. Some information has been completed for you.

Order	Operation	Tools	Description
1	Cut blank to size		
2		punch	
3			
4			Remove burrs from edge

(9 marks)

Turn over ►



3 (b) Identify **one** safety issue during the making of the bracket and describe how it could be avoided.

Issue

Description.....

.....

.....

.....

(3 marks)

3 (c) Describe **one** technique which could be used to ensure that all the brackets are the same size.

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.....

(2 marks)


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4

4 (a) Identify each of the following components.

4 (a) (i)		
4 (a) (ii)		
4 (a) (iii)		
4 (a) (iv)		
4 (a) (v)		

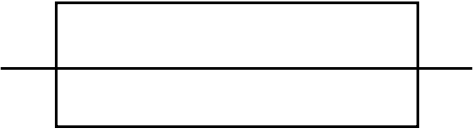


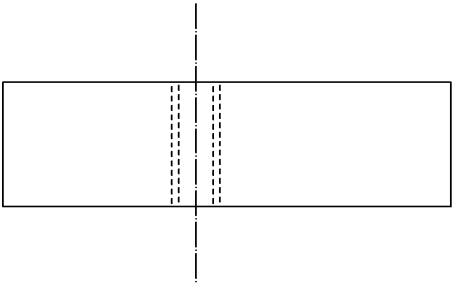
(5 marks)

Turn over ►



Barcode

4 (b) Identify the following components from the symbols shown below.

<p>4 (b) (i)</p>		
<p>4 (b) (ii)</p>		
<p>4 (b) (iii)</p>		
<p>4 (b) (iv)</p>		

(4 marks)

<p>9</p>



5

5 (a) The steering mechanism of a ride-on a toy car could be made from a metal.

5 (a) (i) State one suitable metal
(1 mark)

5 (a) (ii) Give two reasons for selecting this metal.

Reason 1

Reason 2
(2 marks)

5 (b) Copper is commonly used as the conductor in electrical cables. State one advantage **and** one disadvantage of the use of copper for this purpose.

Advantage
.....
.....

Disadvantage
.....
.....

(2 marks)

5 (c) The cases of mobile phones are often manufactured from plastics materials. Describe how the properties of plastics contribute to this choice.

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

(3 marks)

8

Turn over ►



6

A PVC rod is often used for curtain rails. Use notes **and** sketches to describe how a PVC rod could be extruded.



Marks will be awarded for:
Information conveyed – (4 marks)
Quality of sketch – (2 marks)

(6 marks)

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END OF QUESTIONS



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