



General Certificate of Secondary Education
January 2011

Engineering

Paper 2

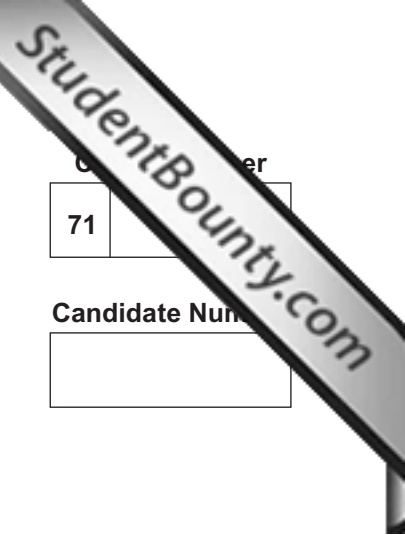
Assessment Unit 3

assessing

Engineering Technology

[GEE32]

TUESDAY 1 FEBRUARY, MORNING



Centre Number
71

Candidate Number

TIME

1 hour.

INSTRUCTIONS TO CANDIDATES

Write your Centre Number and Candidate Number in the spaces provided at the top of this page.

Write your answers in the spaces provided in this question paper.

Answer **all** parts of the one question in this paper.

The paper should be answered in relation to the Pre-Release Material.

You will be provided with a new copy of the Pre-Release Material.

You should **not** bring any of the material previously issued, or any notes made in to this examination.

INFORMATION FOR CANDIDATES

The total mark for this paper is 40.

Figures in brackets printed down the right-hand side of pages indicate the marks awarded to each part question.

Quality of written communication is assessed in **(i)** and **(j)**.

For Examiner's use only	
Question Number 1	Marks
(a)	
(b)	
(c)	
(d)	
(e)	
(f)	
(g)	
(h)	
(i)	
(j)	
Total Marks	



6605

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Answer **all** parts of the question.

Examiner Only	
Marks	Remark

1 (a) Name an appropriate finish apart from powder coating that could be applied to a hand trolley.

_____ [1]

(b) What is the purpose of the bearings that are attached to the frame of the hand trolley.

_____ [1]

(c) The frame of the hand trolley is assembled by the use of robotic welding. Give **two** advantages to a manufacturer of using this type of new technology compared to more traditional methods.

Advantage 1

_____ [2]

Advantage 2

_____ [2]

(d) Information and Communication Technology (ICT) is used during the design stage of a hand trolley.

(i) State **one** type of ICT that could be used during the design stage and explain how it is used.

Type of ICT drawing package used.

_____ [1]

Explain how this ICT is used.

 _____ [2]

(ii) Give **one** benefit of using ICT at the design stage.

 _____ [2]

(e) The frame of the hand trolley is manufactured by a process called **extrusion**.

Explain why this is an appropriate manufacturing process to make this part.

 _____ [2]

Examiner Only	
Marks	Remark

(f) Give **two** reasons why CAM is used for high volume production of hand trolleys.

Reason 1

_____ [2]

Reason 2

_____ [2]

(g) Certain parts of the hand trolley are manufactured by cold formed mild steel pressing.

Explain why this is an appropriate manufacturing technique.

_____ [2]

(h) The bearing is housed in thick wall tubing which has been turned down and bored.

Name an appropriate machine which could carry out this manufacturing process.

_____ [1]

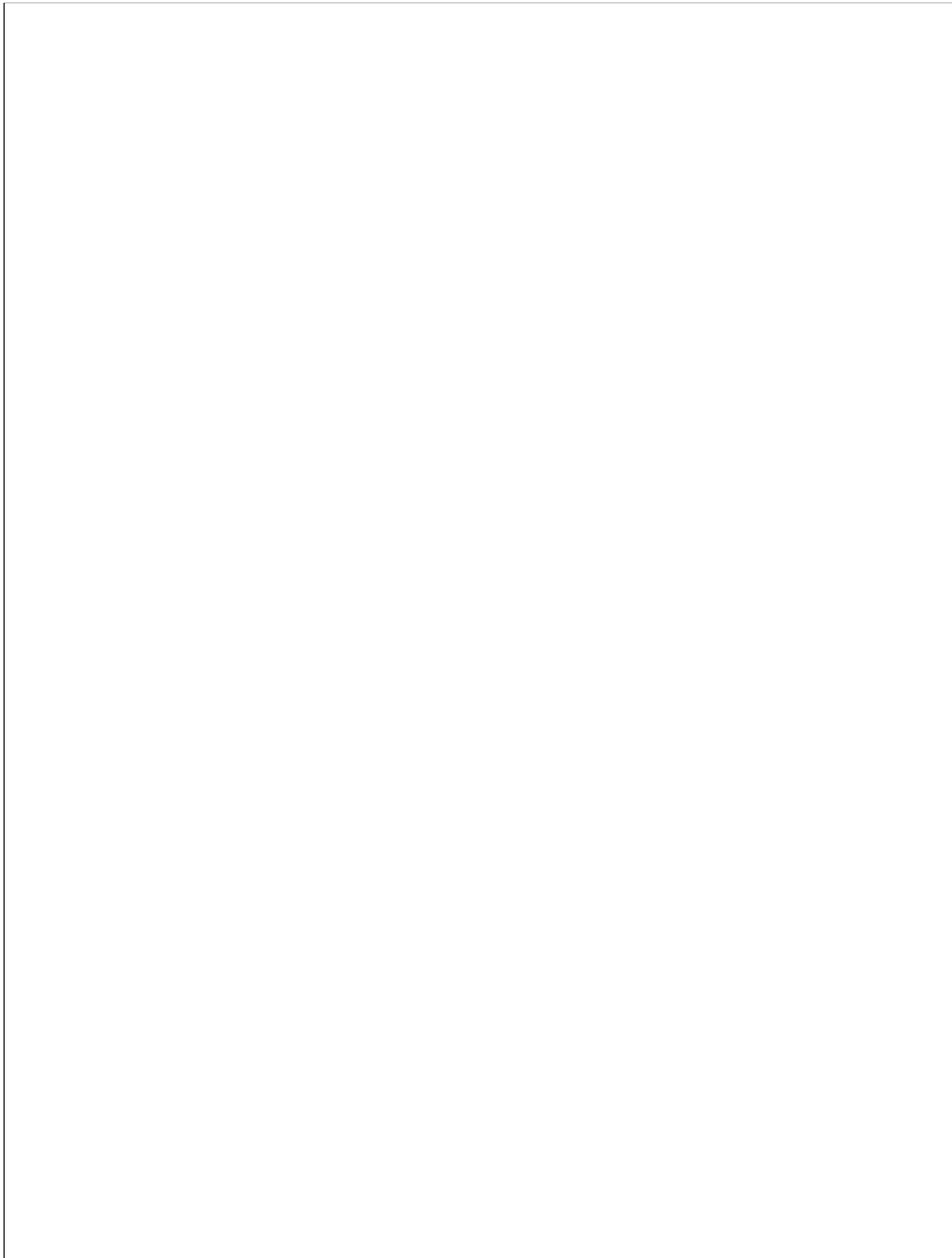
Examiner Only	
Marks	Remark

- (i) The plastic handles of the hand trolley are manufactured by a process known as injection moulding.

In the box below using annotated sketches and correct terminology explain this process.

Marks will be awarded for

- Detail contained in sketches [4]
- Quality of sketches [3]
- Detailed notes [3]



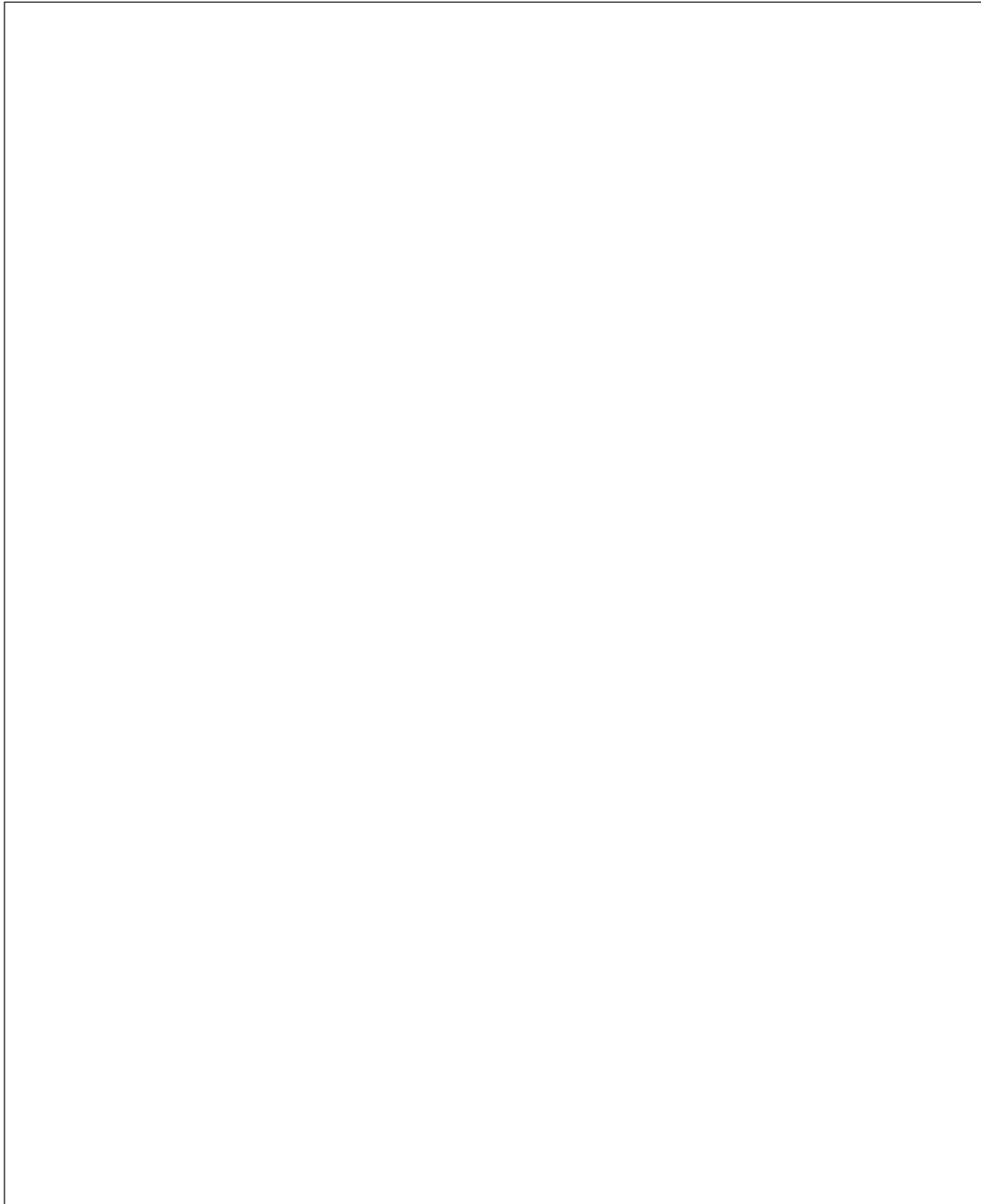
[10]

Examiner Only	
Marks	Remark

(j) Using notes and sketches in the box below, design a modification to the hand trolley that would allow the ledge to fold upwards to allow easier storage.

Marks will be awarded for

- Suitability of chosen method [4]
- Quality of sketches [3]
- Detailed notes [3]



[10]

THIS IS THE END OF THE QUESTION PAPER

Examiner Only	
Marks	Remark

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Rewarding Learning

General Certificate of Secondary Education
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Pre-Release Material

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Assessment Unit 3

assessing

Engineering Technology

[GEE32]

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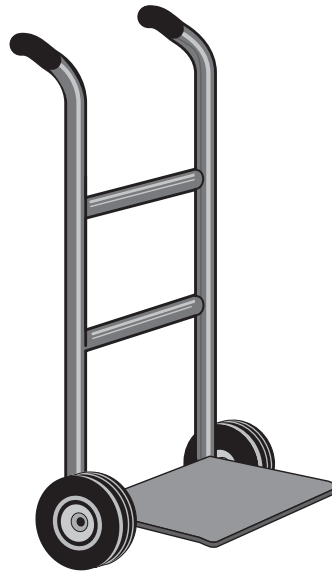
You must use **this** clean copy of the Pre-Release Material in the examination and **not** your own annotated copy.



6605.03

Engineering Technology Pre-Release Material

The image below shows a “Hand Trolley”.



Description

A hand trolley such as the one shown above is an L-shaped box moving handcart. It has handles at one end, wheels at the base with a ledge to set objects on, which is flat against the floor when the trolley is upright. The objects to be moved are tilted forward, the ledge is inserted underneath them, and the objects are allowed to tilt back and rest on the ledge. The trolley and objects are then tilted backward until the weight is balanced over the large wheels, making otherwise heavy and large objects easier to move. It is an example of a first class lever.

Features include:

- Frame material – steel
- Finish – Powder coating
- Pressed steel galvanised rims
- Injection moulded hand grips (PE)

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