

General Certificate of Secondary Education 2013

Engineering

Paper 2

Assessment Unit 3

assessing Engineering Technology

[GEE32]

WEDNESDAY 22 MAY, AFTERNOON





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 into this examination.

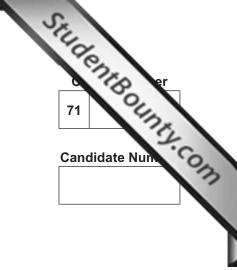
INFORMATION FOR CANDIDATES

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 (h) and (i).

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

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	Answer all parts of the question.	Examiner Only Marks Remark
(a)	The Shopping Trolley shown in the Pre-Release Material is assembled using a number of fittings.	
	Name one fitting and give an example of where it is used.	
	Fitting	
	[1]	
	Where it is used	
	[1]	
(b)	Information and Communications Technology (ICT) is used in the design and manufacture of a Shopping Trolley.	
	State and describe one use of ICT in the design stage of a Shopping Trolley.	
	Type of ICT used	
	[1]	
	Description of use	
	[2]	
(c)	The basket of a Shopping Trolley is bent into shape using automated machinery creating 20 tonnes of pressure.	
	Give one advantage why this is an appropriate way of manufacturing the basket of the Shopping Trolley.	
	[1]	
	[1]	

[Turn over

1

(d) The table shown below highlights the various stages in manufacturing a Shopping Trolley.

 Design

 Production Planning

 Material Supply and Control

Processing production

Packaging and dispatch

- (i) In the above table fill in the **two** missing stages in the manufacture of a Shopping Trolley. [2]
- (ii) State the stage where swivel castors are made.
- (e) Read the following paragraph and answer the questions that follow.

The most commonly used robots are articulated robots. Most types of robots are programmed to carry out specific actions over and over again (repetitive actions) without variation and with a high degree of accuracy.

These actions are determined by programmed routines that specify the direction, acceleration, velocity, deceleration and distance of a series of coordinated motions.

(i) Give **one** example of where robotics is used in the manufacture of a Shopping Trolley.

_____ [1]

_____ [1]

Examiner Only Marks Remark

	(ii)	Outline one advantage and one disadvantage gained from robotics when manufacturing a Shopping Trolley.		Examin Marks	er Only Remark
		Advantage			
			_ [2]		
		Disadvantage			
			_ [2]		
(f)		dern technology such as control technology is used in the nufacture of Shopping Trolleys.			
		n reference to Shopping Trolleys, explain the impact control nnology has on:			
	(i)	Safety during manufacture.			
			[2]		
	(ii)	Efficiency of methods of production.			
			_ [2]		
		e steel wire of the basket is shaped with the use of a jig before ng welded together.			
	Out	line one advantage for using a jig for this process.			
			[2]		
				[7	n over
				Linu	0.01

(h) The main plastic handle of a Shopping Trolley is manufactured by a process known as extrusion.

In the box below using annotated sketches and correct terminology describe the extrusion process.

Marks will be awarded for

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

Examiner Only

Marks Remark

- (i) In the box below demonstrate:
 - how the baby seat can become collapsible, and
 - how the plastic wheels are attached to the punched out castors.

Marks will be awarded for

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

[10]

Examiner Only Marks Remark

THIS IS THE END OF THE QUESTION PAPER

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General Certificate of Secondary Education 2013

Engineering Pre-Release Material Paper 2 Assessment Unit 3 assessing Engineering Technology [GEE32] JANUARY 2013 AND SUMMER 2013

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



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Engineering Technology Pre-Release Material

The image below shows a "Shopping Trolley".



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Description

A shopping trolley is a trolley supplied by a shop, especially supermarkets, for use by customers inside the shop for transporting merchandise to the check-out counter during shopping. Customers can then use the trolley to transport their purchased goods to their cars. Most modern shopping trolleys are made of metal or a combination of metal and plastic, and have been designed to nest within each other in line to facilitate collecting many at one time and also to save on storage. The carts come in many sizes, with larger ones able to carry a child.

Features include:

- Swivel castors
- Available in different sizes
- Extruded steel bottom structure
- Frame material steel

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